

STATE
OF
NEW HAMPSHIRE.

ANNUAL REPORTS,
1887.

Vol. I.

MANCHESTER:
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MESSAGE

OF

HIS EXCELLENCY CHAS. H. SAWYER,

GOVERNOR OF NEW HAMPSHIRE,

TO THE

TWO BRANCHES OF THE LEGISLATURE,

JUNE SESSION, 1887.

MANCHESTER:

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MESSAGE.

Gentlemen of the Senate and the House of Representatives :

In accordance with a custom which has been observed since the formation of the government, I make it my first official duty to communicate to you, through an inaugural message, information pertaining to the State and its affairs, with such recommendations and suggestions as appear to me to be worthy of your consideration.

FINANCIAL.

The financial statement for the fiscal year just closed shows that the finances of the State are in a satisfactory condition.

Receipts.

Total receipts during the year	\$1,108,044.84
Cash on hand June 1, 1886	84,353.06
	<hr/>
	\$1,192,397.90

Disbursements.

Total disbursements during the year	\$951,781.79
Cash on hand June 1, 1887	240,616.11

Debt.

Liabilities June 1, 1886	\$3,090,577.49
Assets June 1, 1886	92,035.52
	<hr/>
Net indebtedness	\$2,998,541.97

Liabilities June 1, 1887	\$3,079,161.30
Assets June 1, 1887	247,860.51
	<hr/>
Net indebtedness	\$2,831,300.79
Reduction during the year	\$167,241.18
Reduction 1885-86	25,206.43
	<hr/>
	\$192,447.61

The expenses of the Legislature which met in 1885 explain the comparatively small reduction of the debt in that year. One hundred thousand dollars of the State's indebtedness matures July 1 of the present year, and will be paid from cash now in the treasury. The treasurer's report will give a statement of the state finances in detail.

INSURANCE.

As a consequence of the insurance laws enacted by the last Legislature, fifty-eight foreign fire insurance companies combined together and simultaneously withdrew their agencies from the State, refusing to continue to insure New Hampshire property under those laws. This concerted and organized movement of the withdrawing companies justified the charge that it was a deliberate attempt at coercion, by discrediting the laws to make them obnoxious to the people, the understood object being not only to compel a repeal of the laws, but also to intimidate other States from legislating in the same direction. While they had an undoubted right to refuse New Hampshire risks, each company acting in its own capacity and independently of other companies, in banding together and agreeing to act in concert to punish and distress the property and business interests of the State their course was justly open to censure. It was in effect a strike and a boycott in the accepted meaning of these terms. A fair regard for the welfare of their old customers and agents should have led them to give the laws in question the benefit of a trial before taking such arbitrary action.

The sudden withdrawal of such a large amount of insurance capital threatened for a time to seriously embarrass and cripple the industries of the State, as it affected all business enterprises

depending upon fire insurance as a basis of credit. That the disastrous results that were predicted did not follow was due largely to the promptness and enterprise of citizens in organizing new companies within the State, both stock and mutual, also to the relief afforded by the manufacturers' mutual companies which fully and satisfactorily insured all manufacturing property that could comply with their conditions. Much credit is also due to the insurance agents. Their experience and ability have been a great help in organizing and starting the new companies. New Hampshire has to-day, in successful operation, three joint stock companies which transact a general fire insurance business throughout the country. It has five companies with a capital of from \$25,000 to \$50,000 each, and sixteen mutual companies whose operations are confined to the State, all of which, with a single exception, it is understood, are at present in good standing and have been generally successful. There are also twenty-one town mutuals. I am not aware that any litigation has arisen under the new laws.

Following the withdrawal of the companies, the years 1885 and 1886 showed a large reduction in the fire loss, which was reasonably attributed to the greater precautions taken by the owners of property that was not fully covered by insurance. The month just passed has witnessed a succession of disastrous conflagrations which will materially increase the record of fire loss for the present year. It is to be hoped that the lessons learned by costly experience will not be lost upon the people of the State, and that they will be moved to more energetic and systematic efforts in providing effective water-works and other appliances for extinguishing fire, in localities where they are now deficient.

The experience of the past two years has not been lost in an educational point of view. The people have grown to a better knowledge of a business that has been but imperfectly understood, although of great magnitude and importance and affecting a great variety of interests. By the plan upon which general fire insurance is conducted, the insuring companies transact business with their customers through agents or brokers, who are paid for their services by commissions upon premium

receipts. Comparatively little attention appears to be given or effort made in the direction of preventing fires, such as the encouragement of improved methods of construction and careful and regular inspection of risks, which are distinctive features of that class of companies known as Manufacturers' Mutuals, and which would seem to be fundamental principles in conducting the insurance business so as to obtain the best results. The party seeking insurance, having confidence in the agent to whom he applies, takes his policy in good faith supposing that if he suffers loss he will get what he pays for. Naturally placing a high estimate upon the value of his own property, he insures accordingly, receiving direct encouragement from the agent, whose commissions will be in proportion to the premiums received, and who assumes the responsibility. This leads to over-insurance, the direct tendency of which is to largely increase the fire waste, not so much, in my opinion, from incendiarism as from indifference and neglect, engendered by a consciousness on the part of the insured that he is fully protected against fire loss. Over-insurance is an evil which should be abated. The State has a direct interest in the preservation of its taxable property.

In this direction I recommend that the laws be so amended that it shall be the duty of the assessors in valuing property for the purpose of taxation, to value buildings and the land upon which they are located separately, and that the limit of the insurer's liability, when there is a total loss, shall not exceed three quarters of the assessors' valuation, except by special agreement between the insurer and insured. This would make the owner, to some extent, a co-insurer of his own property, and naturally tend to taking greater precautions to prevent fires. The insurance commissioner is at present compensated for his services by fees collected of the companies to whom licenses are granted. I recommend that he receive a fixed salary from the State, and that all fees be paid into the state treasury. In my opinion, the State should in all cases pay its own servants. There should also be legislation to regulate the investment of the funds of state companies, particularly of those companies whose business is confined to New Hampshire.

A summary of the business of the New Hampshire fire insurance companies in this State during the year 1886, as received from the insurance commissioner, is as follows :

	Risks written in 1886.	Losses paid.
Stock companies	\$31,936,240	\$67,044.33
State mutuals	11,818,540	40,684.33
Town mutuals	6,321,578	4,031.48
Totals	\$50,076,358	\$111,760.14
Manufacturers' mutual companies	\$35,025,131	\$387.77
The companies that withdrew had remaining at risk, Dec. 31, 1886	\$26,459,958	\$155,487.06

The commissioner's carefully prepared and interesting report, which will soon be laid before you, will supply further and more detailed information.

SAVINGS BANKS.

The savings banks exhibit a steady growth in deposits and the number of depositors. In 1860, as appears by the bank commissioners' report, there were in the State twenty-six savings banks, having 30,828 depositors, the amount deposited being \$4,860,024.86. By the 1887 report, it appears that the number of banks had increased to sixty-seven, with 134,945 depositors and \$50,406,434.77 of deposits, or an average of \$373.53 to each depositor as against \$187.65 in 1860. This vast accumulation of capital is largely made up of the savings of people of limited incomes, who by prudence, economy, and self-denial have thus provided against the disabilities of sickness and old age as well as for those who are dependent upon them for support. This great trust deserves the most careful supervision on the part of the State. While there is reason to believe that our savings banks, in standing, compare favorably with those of other States, I am of the opinion that there should be more stringent legislation in regard to the investments of savings bank funds.

To more securely guard the interests of the depositors I earnestly recommend additional legislation regulating the invest-

ments of savings banks, so that the law shall clearly specify the class of securities in which the banks may be permitted to invest their funds, and also limiting the amount that they may hold of each class. I also recommend that provision be made for a uniform system of book-keeping for savings banks, to be prescribed by the bank commissioners, subject to the approval of the Governor and Council, with authority to employ expert assistance in the work if it should be required.

RAILROADS.

Full information in regard to the railroad interests of the State will be found in the report of the commissioners. In any legislation that may be enacted at this session in reference to railroads, great care should be taken that the interests of the people are securely guarded.

LABOR.

Among the questions that assumed prominence in the late election were those affecting the interests of labor. While it would be unwise and contrary to the spirit of our institutions for the State to make laws that would interfere with the freedom of individuals, in the transaction of a lawful business, to buy or sell when and where, with whom and upon such conditions as may suit their own will and convenience, yet it is right and proper to establish such limitations by general and practical laws and regulations as will serve to protect the worker from undue hardships, which often result from business competition. In this direction, however, legislation must not only be confined within constitutional limits, but great care should be exercised that it may not be in violation of natural laws which govern and control business. Otherwise, there is danger of aggravating the evils that it sought to remedy, without practical benefit to any one.

The demands of labor as formulated in the platforms of the leading political parties in the last election were not unreasonable. They called for the enactment of a ten-hour law, which is understood to mean that the daily working time in manufacturing and mechanical establishments shall be limited to ten hours, or sixty hours per week; if it should be found desirable to work more

than ten hours to secure a shorter day's labor at the end of the week, I recommend the enactment of such a law. Also there is a demand for more frequent payments. I recommend weekly payments, and would suggest for your consideration a modification of the trustee law so that the wages of laborers may be exempt from attachment for debt. Weekly payments would do away to a great extent with the necessity of asking for credit. I am decidedly of the opinion that the abuses under the present trustee law, so far as the laborer is concerned, more than offset any benefit that accrues to the creditor. The sentiment of honor, which is the foundation of business credit, would also be encouraged.

I also recommend the passage of a law providing for a board of arbitration or mediation to which differences between employers and their help may be referred for adjustment. There are few things more destructive and ruinous to business enterprise than a strike. Its effects are far reaching and disastrous. It involves not only the immediate loss to the parties concerned, but tends to a loss of confidence and a distrust that are often more lasting and injurious in their effects.

I also recommend the passage of a law providing for a bureau of statistics, whose duty shall be to collect information relating to the industries of the State, and publish the same for the benefit of the people. The competition that the industries of this country have to meet from those of other countries where costs are based upon much lower prices of labor, is an element which overshadows all others, as affecting the reward of labor in this country. We have great advantages, which should be properly cared for and not thrown away by injudicious legislation. We have a vast country in a temperate climate, with a soil capable of supporting a population greater than any other nation that now exists, and natural resources that are practically inexhaustible, and it is for us as a nation to decide whether we will continue the course in which we thus far have made so much progress, and build up a civilization which will be an example for the people of other nations to follow, or whether we are to waste the opportunities that Providence has placed in our way, and relapse into the methods and customs that prevail in other countries

with other forms of government, and from which we have departed.

Labor and capital should work in harmony and not waste their strength in warring against each other. In this country they have common interests and mutual obligations. Together they should demand that the national government should adopt all proper measures to guard the industries of the country against outside and objectionable influences. It follows that the true policy should be to encourage reciprocity among our own people, and that every article consumed by them should, as far as possible, be manufactured or produced in this country. We have much to lose and but little to gain by opening our doors for an industrial contest with other nations. In this direction a great responsibility rests with the national Legislature.

TEMPERANCE.

Next to the integrity of the ballot, no question is of greater importance and concern to the public welfare than that of temperance. It is safe to make the assertion that intemperance is directly and indirectly the cause of by far the largest part of all the crime, immorality, misery, and unhappiness that afflict the human race. It is the most destructive and corruptive force with which a free government has to contend. Suffrage is worse than wasted upon men whose brains are controlled by the influence of the saloon or bar-room. The growth of the saloon has done more than all other agencies to extend the great curse and to neutralize the efforts that have been made in the direction of temperance reform.

The question before us is, What can be done more than has been done to correct and stamp out a traffic which is so blasting in its effects and pernicious influences?

Measured by the time that its prohibitory laws have been in force, New Hampshire has been what is termed a prohibitory State for over thirty years. While the laws have not been as effective to restrain the evil of intemperance as could be desired, particularly in the larger towns and cities, taking into view the space of time the subject has been agitated, I think it must be admitted that the cause has been steadily gaining ground, and

that there is a steadily growing temperance sentiment throughout the country, of which we are every day receiving new evidence and from localities where least expected, notably in the West and South. In the face of this and the fact that the prohibitory laws through the growth of public sentiment have become effective in a large number, perhaps a majority, of the towns in the State, at least so far as to drive the traffic out of sight and make it disreputable, I can but feel that it would be a great mistake as well as misfortune to change from the present policy to that of free sale under license as has been proposed.

All that can be expected from the license plan is revenue. It can have no restraining or corrective influences. This has been clearly established where license has been tried through local option laws. The claim that it would be a means of raising revenue from the liquor sellers, and thus make the traffic pay a portion of the expenses entailed upon the State through the support of its paupers, reformatory and penal institutions, loses its force when it is considered that the State would participate in the profits of a traffic which has come to be regarded as unlawful by the best sentiment of the community, and the tendency of which is to sap the very foundations of the government through its corruptive influences.

In my opinion the State should have an established policy steadily and persistently adhered to, and that policy should continue to be prohibition. The prohibitory statutes in effect place the seal of the State upon its disapprobation of the traffic in intoxicating liquors. Those laws will become effective with the growth of temperance sentiment among the people. Education is to be a potent factor in promoting the cause, particularly with the young. The State has already taken an important step in this direction through the laws recently enacted, providing for teaching temperance in the public schools. It should not be forgotten that the organized agitation of this great question is of comparatively recent origin; that it is a movement to reform customs and habits that have been common to nearly all nations and from time immemorial; that such a great reform cannot be accomplished in a day. It is a work that must necessarily cover a great space of time, and demands patient, persist-

ent and well-directed efforts from the temperance forces. The incorporation of the principle of prohibition in the constitution would serve as a protection against temporary legislation of an unfriendly character. Should a constitutional convention be called in accordance with a recent vote of the people, the question of a prohibitory amendment will undoubtedly come before that convention, and, if the convention so decide, will be submitted to the people for their approval. Any legislation that promises to secure a better enforcement of the present prohibitory laws will receive my approval.

EDUCATION.

The State has a deep interest in the cause of education. Its safety and permanence in no small degree depend on the intelligent and educated voter. It has the right to insist that every child shall have at least a good common school education, and to that end compel school attendance, also to use all lawful methods to regulate and increase the efficiency of its school system and management. A careful reading of the New Hampshire school reports leads to the conclusion that the schools are generally under good care and management, and under the new school law, known as the town system, must soon show a marked improvement in scholarship and attendance. The system has been thoroughly tested in the larger towns and cities of the State with very satisfactory results. There are good reasons to believe it will work equally well in all of the towns when fairly established. These reasons are ably set forth in the report of the superintendent of public instruction. There may be temporarily some inconvenience, and perhaps hardship, particularly in the more sparsely settled towns, but in the end, if the seemingly well-grounded hopes and expectations of the friends of the new law are realized, those are the localities that will derive the most benefit from its operations.

The object of this law is to give every child in the State, as nearly as possible, equal school privileges; that the poorer and more remote country schools may have the same advantages that accrue to those in more densely settled localities; and that the wealth which is concentrated in the more favored sections shall

help bear the burdens of educational expenses in the poorer districts. Legislation in this direction cannot fail to be beneficial, and the new system should have the benefit of a fair and thorough trial. As a further step in the direction of encouraging education, I would recommend that this Legislature take into consideration the question of free text-books to be supplied by the towns to the public schools free of cost, under proper restrictions. This would insure a uniformity of text-books in our schools, and would also relieve the poor of a serious burden of expense.

NORMAL SCHOOL.

The normal school is an important part of the public school system. It is intended to supply competent teachers for our schools, who are educated, trained, and disciplined for their profession. The demand for such teachers is great, and the supply quite limited. According to a late government report, there are 263 normal schools in the United States, with an attendance of 55,135 pupils, and 2,076 teachers. New Hampshire has one normal school with an attendance of 63 pupils, which is an increase over previous years. The school was established in 1871, and up to the present year has graduated 322 pupils, including the present class, the total attendance during the time being 1,482 pupils. It is hardly necessary to say that the results attained have not met the expectation even of its friends.

There appears to be no good reasons why New Hampshire should be an exception to other States in successfully maintaining at least one good and efficient normal school. I hear of no complaint of the management of the school, but much in commendation of what it has accomplished with the means that it has had to work with, and also of the faithfulness and efficiency of its board of instruction. It is claimed that the principal cause of its non-success is inadequate financial support, and that the annual appropriation of \$5,000 made by the State is not sufficient for the needs of the school. The school is consequently kept on short allowance, and not supplied with the apparatus and other facilities that are essential to secure the best results for

the money expended. There may be other reasons why the school is not more prosperous, and which would appear upon investigation.

A careful investigation of the school and its affairs is recommended, to the end that the obstacles in the way of its success may be removed, and the necessary steps taken to bring it up to a standard that will be creditable to the State.

AGRICULTURE.

The agricultural interests of the State should continue to receive the legislative care and attention deserved by their importance. While the State shows an increase in wealth and population, the increase has been mostly confined to the manufacturing towns and the localities that attract pleasure travel and summer visitors. The strictly farming towns have hardly held their own, and in many instances have retrograded.

Through the extension and consolidation of railroads, and the great improvements that have been made in their economical operations, a vast region of cheap, fertile, and easily cultivated land has been opened up to settlement in the West, and its products brought into direct competition with those of the less favored sections of the country. The agriculture of New Hampshire has had its full share of this competition, the effect of which has been to temporarily discourage farming as a profitable occupation, particularly in those parts of the State that are remote from business centers, and where the soil is of a character that will not permit the free use of machinery in cultivation. As the Western States grow in population they must proportionately become larger consumers of their own products. This, together with the increase in the value of the land and the expense of maintaining its productiveness as its natural fertility becomes exhausted, must gradually restore an equilibrium as regards farming profits, and eventually place the different sections of the country on a more equal footing so far as its agriculture is concerned.

The farmers of New Hampshire in organizing societies for mutual benefit and improvement have taken a step which promises to infuse new life into their industry and to restore their

calling to the leading and influential position which it should naturally occupy. It gives me pleasure to refer to the work of the Patrons of Husbandry, which deserves commendation for the sensible and methodical way in which it is conducted.

AGRICULTURAL COLLEGE.

The committee appointed to consider the subject of the removal of the Agricultural College will present their report during the present session. In view of the large outlay that has been made by the State to establish the college in its present locality, it would be of doubtful expediency to take such a radical step as its removal, except for reasons more urgent than now appear.

By an act of Congress passed at its last session each State is entitled to receive the sum of \$15,000 annually for the establishment and support of an agricultural experimental station. Should the conditions upon which this grant is made be such that it can be used in connection with the college and its experimental work, it must favorably affect the future success of the institution. Congress failing to make the necessary appropriation, it will not be available the present year.

STATE LIBRARY.

The State Library has outgrown its present quarters, and the need of relief grows with the accumulation of books which is gradually converting the state capitol into a storehouse. Several thousand volumes are now stored outside the library room proper. By authority of the 1881 Legislature, plans and estimates were obtained by the Governor and Council for a new library building and submitted to the succeeding Legislature, with which they failed to find favor. The Legislature of 1885 appointed a committee to correspond with the national government to see if the required accommodations could be obtained in their new public building which is being erected in the rear of the state house. I cannot find by the report of the committee that any definite conclusions were arrived at. It was suggested in the report that accommodations might be secured in the basement of the new

building by utilizing the room that would not be required for furnaces and closets. The committee recommended that further consideration of the question be postponed until the present Legislature, in expectation that the building would then be completed. The recommendation was adopted.

I trust that this Legislature will take the matter into serious consideration, and take some action towards providing adequate accommodations for the present library and future additions. In my opinion it should be in a fire-proof building owned and controlled by the State. It need not necessarily be a building of elaborate and expensive architecture, if located on a lot outside of the capitol grounds, as it would not then be required to harmonize with the capitol building. The most approved fire-proof construction is considered to be of brick, and many of the finest buildings are now constructed of that material. Room should be provided in the same building for holding the law terms of the supreme court of the State, and for the use of the judges when in consultation.

MILITIA.

From the reports of the adjutant-general and his subordinate officers you will be able to derive full and accurate information in regard to the condition of the New Hampshire National Guard. Not much need be said in regard to the importance of maintaining the present high character and efficiency of our small military force. It forms the nucleus or framework for an establishment of much larger proportions which could be efficiently organized at short notice if the necessity should arise.

I recommend the usual appropriation, and in addition a special appropriation for the purchase of new clothing for the troops. A renewal of uniforms will need to be commenced at once, to replace those that are becoming unserviceable from age and long-continued use. I would suggest the propriety of making a specific annual appropriation by law of a sum, which, being cumulative, would be sufficient to keep the uniforms in good condition and could be drawn upon as wanted by the requirements of the service. This would seem to be preferable to and more economical than the present plan of making irregular and large appropriations for extensive changes.

Through a special appropriation made by the last Legislature, added to an appropriation made in 1879, which was available, substantial and much-needed improvements have been made in the camp-grounds and buildings, and they are now in a satisfactory condition. An annual appropriation was also made by the same Legislature, to continue two years, for the purpose of preparing and publishing a register of New Hampshire soldiers engaged in the last war. The work has been steadily carried forward, and it is estimated that it will take two years more to complete it in a satisfactory manner. To do this it will be necessary to extend the appropriation correspondingly, in accordance with the recommendation of the adjutant-general. It is important that this valuable and interesting work having been commenced should now go on without interruption until finished.

INSANE ASYLUM.

The New Hampshire Asylum for the Insane was incorporated in 1838 and received its first inmates in 1842. It has received donations and legacies to the amount of \$271,382.72, all of which have been safely invested, each fund by itself, the income only being used in maintaining the institution. The principal is never encroached upon. The State has made special appropriations from time to time as contributions toward the buildings and improvements, made necessary by the growth of the institution. The State has also contributed annually \$6,000 for the benefit of the indigent insane. This appropriation is fixed by statute. Ten thousand dollars of the income received from its invested funds is also set aside by the trustees for the same purpose.

Of the 330 unfortunates now in the asylum, 150 belong to the indigent class, and receive aid according to their individual necessities. This noble charity has been conducted and maintained in a manner that is very creditable to the State and the managers of the institution. The Fisk legacy by its conditions becomes available the present year. With accumulated interest it now amounts to \$24,881.31 and is invested with the State at six per cent interest. It is desirable that the State should con-

tinue to hold this fund like other similar funds, and I so recommend; and also that the interest be paid to the trustees semi-annually.

An outlay estimated at \$12,287 will be required the present year to make necessary changes in the steam-heating apparatus of the asylum. The work to be done includes three new steel boilers to replace those that have now been in use from twenty-three to twenty-five years, alterations of the boiler-house, also new circulating pipes and radiators adapted to the use of steam at low pressure and return circulation. I think the estimate may be reduced by dispensing with the brick arching over the proposed boiler room, the story being of sufficient height to obviate the necessity of that part of the expense. With this modification, an appropriation is recommended for the repairs and improvements as proposed.

BOARD OF HEALTH.

The establishment of a State Board of Health was a wise and beneficent measure. In the work of tracing to their origin the various epidemic and contagious diseases which are so destructive to human life and health, and their prevention through the adoption of effective sanitary measures, the board renders a valuable service to the people of the State, and is entitled to a deserved encouragement and support. The carefully prepared reports of the board will give you a full and detailed account of its work during the past two years.

INDUSTRIAL SCHOOL.

Not being able to be present at the annual examination of the Industrial School, I made the institution a private visit shortly afterwards, and was enabled to see the school and its inmates in their every-day dress and occupations. It impressed me as being a model establishment of its kind. The order was excellent, and the pupils in their recitations showed the evidences of careful and judicious training. There are at present ninety-three boys and twenty-five girls in the school. The state of health is excellent. During the past year there has not been a patient in the hospital from sickness, and no deaths have occurred during the

past three years. The children are taught useful trades which will benefit them in after life.

The manufacture of knit goods has recently been introduced with good results. No aid is required in addition to the fixed allowance now made by the State, unless the Legislature should deem it expedient to make an appropriation for a small dye-house, that part of the work being now done outside. It would furnish additional employment of a highly useful and educational character. The outlay need not be large, as the present steam appliances could be utilized.

STATE PRISON.

There has been a decrease in the number of state prisoners during the past year. There are now in the prison 121 convicts as against 132 in 1886. The discipline of the prison appears to be good, and its affairs well ordered and economically managed. A deficiency of \$3,576.68 is reported, the receipts falling short of disbursements by that amount. There are certain repairs and improvements which should be provided for by this Legislature, and which are specified in the report of the warden of the prison, that will involve an estimated outlay of \$6,500. This estimate provides for automatic sprinklers in the workshop, also for the purchase of land in front of the prison. It is very desirable that the State should own the land in question, so as to control the prison surroundings, which otherwise might in time become detrimental to its interests. I recommend the appropriation.

The convicts for many years have been employed under contract in the manufacture of a cheap grade of furniture for which the location of the prison affords exceptional facilities. The health, discipline, and moral welfare of the prisoners make it absolutely necessary that they should be regularly employed in some steady and useful occupation. While perhaps some other kind of business could be found which would in some respects be more desirable and advantageous to the State than that now carried on, it is doubtful if the prison labor could be employed in any other remunerative occupation with so little injury to the interests of free labor and capital as under the present arrange-

ment. I do not learn that there are any establishments in the State manufacturing the same description of goods that are manufactured at the prison. In this respect New Hampshire is perhaps an exception to other States.

MOUNTAIN ROADS.

With the growth in popularity of the White Mountains as a resort for health and pleasure, the State has for a number of years appropriated money to aid in the construction and repair of mountain roads. It has been suggested that the appropriation made for this purpose should be in a gross sum to be expended under the direction of the Governor and Council, and that the money could in this way be more judiciously and economically expended than by the present plan of making specific appropriations for each locality to be expended through the employment of agents. The suggestion is worthy of consideration.

FISH AND GAME.

The work of the fish and game commission is steadily progressing, and from ample testimony there appears to be no good reason to doubt that the benefits expected from the operation of the protective laws and expenditures made by the State in providing propagating establishments and stocking the ponds and smaller water-courses of the State are to be fully realized. With the knowledge gained by experience, the efforts of the commissioners are being better directed and their work more effective. The commissioners in their report make some recommendations that are worthy of favorable consideration.

BOUNDARY MASSACHUSETTS AND NEW HAMPSHIRE.

In accordance with resolves of the last Legislature, commissioners have been appointed, in conjunction with similar commissions appointed by Massachusetts, to ascertain and establish the true jurisdictional line between New Hampshire and Massachusetts. The joint board have caused surveys to be made of the Merrimack River, and of the line marked by monuments in 1827, under the authority of Massachusetts, from the ocean to the so-

called boundary pine, a report of which will be made to the Legislature. The commissioners propose to make a survey of so much of the line from the boundary pine to the west bank of the Connecticut River as may be necessary to determine the true jurisdictional line on that part of its course. The surveys must be completed before the commissioners can complete their work. Massachusetts having magnanimously taken the initiative in this movement, it is to be hoped that the work will be carried through to completion, and that the rightful boundary between the two States may be finally and definitely established.

CONSTITUTION—CENTENNIAL CELEBRATION.

The governors and representatives of the thirteen colonial States met at Philadelphia, September 17, 1886, at the historic Carpenter's Hall, to consider the propriety of preparing for a national celebration of the centennial anniversary of the framing of the constitution of the United States. In accordance with resolutions adopted at that meeting by request of its chairman, a delegate was appointed by the Governor to represent this State in the permanent organization. The convention met in Philadelphia as the guests of that city, December 2, 1886, and perfected a permanent organization. A program was adopted for the celebration, which is to occur on the 17th of September of the present year.

As one of the original thirteen States participating in the illustrious work of framing our national constitution, it is appropriate that New Hampshire should be represented on that occasion, and I recommend suitable legislation authorizing such representation.

MEMORIAL STATUE.

An act of Congress passed in 1864 authorized the president "to invite all the States to provide and furnish statues in marble or bronze, not exceeding two in number for each State, of deceased persons who have been citizens thereof and illustrious for their historic renown or for distinguished civic or military services such as each State may deem to be worthy of this national commemoration; and when so furnished, the same shall be placed in

the old hall of the House of Representatives, in the capitol of the United States, which is set apart, or so much thereof as may be necessary, as a national statuary hall."

It has been suggested that one of these places could be appropriately filled by a marble statue of General John Stark as the most prominent military figure of New Hampshire's Revolutionary war history. As the Bennington monument is now approaching completion, it seems a fitting time to make a proposition that the services of that distinguished officer and citizen of New Hampshire, who commanded the patriot forces in the important and decisive battle of Bennington, should be so commemorated. I recommend the suggestion to your favorable consideration.

INDEXING RECORDS.

The work of indexing the state records in the secretary's office, inaugurated by the Legislature of 1883 and continued by that of 1885, has been carried on into the journals of the House under the Province, 1711-1775. The printing of this, now nearly ready for the press, a volume of some 400 pages, if issued in the same style as the index to the laws, should be provided for, as well as continuing the work into the next period, the revolutionary, now of exceptional interest in view of the publication of the war rolls.

The work of editing and publishing the provincial town and state papers, which was begun in 1866, is nearly completed. The fifteenth volume has just been issued, and the sixteenth is ready for the press. There will be one more volume to follow, which will complete the work.

CONSTITUTIONAL CONVENTION.

By a vote of the people at an election held in March, 1886, the question of calling a constitutional convention was decided in the affirmative. If a convention is to be held in accordance with that vote, it will be necessary for this Legislature to provide for the meeting of the convention.

CONCLUSION.

In conclusion I cannot omit a just tribute to my able and distinguished predecessor and his honorable council in acknowledging the courteous consideration and assistance that I have received at their hands in obtaining information in regard to the State and the condition of its affairs. We meet here as servants of the people. Recognizing the full measure of the responsibility which we have assumed, and invoking the aid of Him who guides and controls the destinies of nations, let us assiduously apply ourselves to the work of the session, and strive to earn, by a faithful discharge of the duties incumbent upon us, a deserved commendation from the people of the State, who have committed to us this great and honorable trust.

R E P O R T

OF THE

STATE TREASURER

OF THE

STATE OF NEW HAMPSHIRE,

FOR THE YEAR ENDING

MAY 31, 1887.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1887.

REPORT.

OFFICE OF STATE TREASURER,
CONCORD, June 1, 1887.

To the Honorable Senate and House of Representatives:

GENTLEMEN,—I have the honor to submit the following report, exhibiting the transactions of this department for the fiscal year ending May 31, 1887:

ABSTRACT OF RECEIPTS AND DISBURSEMENTS.

RECEIPTS.

Cash on hand June 1, 1886	\$84,353.06
Total receipts during the year	1,108,044.84
	<hr/>
	\$1,192,397.90

DISBURSEMENTS.

Total disbursements during	
the year	\$951,781.79
Cash on hand June 1, 1887	240,616.11
	<hr/>
	\$1,192,397.90

DEBT.

Liabilities June 1, 1886	\$3,090,577.49
Assets June 1, 1886	92,035.52
	<hr/>
Net indebtedness	\$2,998,541.97

<i>Amount brought forward</i>	.	.	.	\$2,998,541.97
Liabilities June 1, 1887	.	.	\$3,079,161.30	
Assets June 1, 1887	.	.	247,860.51	
			<hr/>	
Net indebtedness	.	.	.	\$2,831,300.79
			<hr/>	
Decrease of debt during the year	.	.	.	\$167,241.18

REVENUE AND EXPENSES.

The following statement exhibits the sources of the revenue and the nature of the expenses for the year 1886-87:

REVENUE.

State tax	.	.	.	.	\$400,000.00
Railroad tax	.	.	.	.	101,191.22
Insurance tax	.	.	.	.	6,563.32
Interest	.	.	.	.	1,416.81
License fees (peddlers)	.	.	.	.	190.00
Miscellaneous	.	.	.	.	12.00
License fees (fertilizers)	.	.	.	.	550.00
Telegraph tax	.	.	.	.	5,806.73
Telephone tax	.	.	.	.	195.65
Special road tax, 1881 (balance)	.	.	.	.	19.64
Escheated estates	.	.	.	.	280.76
				<hr/>	
Total revenue	.	.	.	.	\$516,226.13

EXPENSES.

Ordinary expenses	.	.	.	\$142,841.72
Extraordinary expenses	.	.	.	24,805.55
Interest	.	.	.	181,337.68
			<hr/>	
Total expenses	.	.	.	\$348,984.95
			<hr/>	
Excess of revenue over expenses *	.	.	.	\$167,241.18

* Corresponding with reduction of debt as stated above.

For convenience, expenses are divided into two classes, ordinary and extraordinary. Ordinary expenses include salaries and expenses whose payment is authorized by general laws, and which are of annual or biennial occurrence. During the past year they have been as follows, viz :

ORDINARY EXPENSES.

Salaries	\$49,272.99
Honorable council	1,554.00
State printing	17,134.78
Auditing printer's accounts	81.00
Increase state library	500.00
Trustees of normal school (expenses)	36.60
Clerks of supreme court	768.20
Support of indigent insane	6,000.00
Support of convict insane	2,962.10
N. H. National Guard	24,999.51
Bounty on wild animals, etc.	1,198.05
Fish commissioners	2,273.59
State house	4,578.61
Asylum library	100.00
Industrial school	6,000.00
Board of agriculture	948.51
Board of equalization	335.83
Independent militia	400.00
Auditing treasurer's accounts	200.00
Board of health	867.30
Bank commissioners	4,140.00
Clerk, adjutant-general's department	500.00
Clerk, superintendent public instruction	500.00
Clerk, board of health	500.00
Deaf and dumb (education of)	3,997.45
Blind (education of)	3,600.00
Idiotic and feeble-minded youth	258.28

Amount carried forward \$133,706.80

<i>Amount brought forward</i>	.	.	.	\$133,706.80
Normal school	.	.	.	5,000.00
Advertising, other than laws	.	.	.	22.12
Expenses, insurance commissioner	.	.	.	134.25
N. H. Reports, Vol. 63	.	.	.	1,050.00
Publishing laws in newspapers	.	.	.	57.60
Incidentals	.	.	.	2,870.95
				<hr/>
Total ordinary expenses	.	.	.	\$142,841.72

Extraordinary expenses are those which are authorized by special acts of the Legislature. For the past year they have been as follows, viz. :

EXTRAORDINARY EXPENSES.

Abatement of state tax, 1886	.	.	.	\$219.32
Agricultural college	.	.	.	3,000.00
Prisoners' Aid Association	.	.	.	36.80
White Mountain roads	.	.	.	3,433.26
State library (special appropriation)	.	.	.	498.19
State prison (balance current expenses)	.	.	.	3,204.74
Copying muster rolls	.	.	.	125.00
Indexing records	.	.	.	1,200.00
Legacy and succession tax refunded	.	.	.	87.37
Dedication Webster statue	.	.	.	2,257.32
State house (special appropriation)	.	.	.	1,279.55
Gettysburg monuments	.	.	.	1,500.00
Improvement of camp-ground	.	.	.	9.50
License fees refunded (trees, etc.)	.	.	.	150.00
Granite State Deaf Mute Mission	.	.	.	150.00
Publication military records	.	.	.	1,200.00
Duston monument	.	.	.	30.00
Boundary survey	.	.	.	6,416.00
Abstracts military records	.	.	.	8.50
				<hr/>
Total extraordinary expenses	.	.	.	\$24,805.55

INTEREST.

There have been paid on account of interest the past year, or credited to the several trust funds, the following amounts, viz. :

Surplus revenue	\$60.57
Fisk legacy	1,493.12
Kimball legacy	405.21
Agricultural college fund . .	4,800.00
Teachers' institute fund . .	2,927.78
Coupons on bonds and interest on registered bonds. . . .	171,651.00
<hr/>	
Total interest charges	\$181,337.68

The following has been received, viz. :

Interest on deposits	\$1,416.81
<hr/>	
Net interest	\$179,920.87

PRINCIPAL OF STATE DEBT.

There have been paid during the year state bonds amounting to \$14,000.00

TRUST FUNDS.

Trust funds are now as follows, viz. :

Fisk legacy	\$26,378.43
Kimball legacy	6,753.49
Surplus revenue	1,009.44
Teachers' institute fund . .	49,807.11
Interest on surplus revenue .	1,915.69
Agricultural college fund . .	80,000.00
Unclaimed savings bank deposits	597.14
<hr/>	
Total trust funds	\$166,461.30

LITERARY FUND.

Receipts.

Balance June 1, 1886 . . .	\$2.20	
Non-resident savings bank tax .	40,764.13	
	<hr/>	\$40,766.33

Disbursements.

Dividend to towns, of sixty-four cents per scholar, as per table in Appendix	\$40,657.92	
Balance to the credit of the fund	108.41	
	<hr/>	\$40,766.33

TEACHERS' INSTITUTE FUND.

Balance June 1, 1886	\$48,796.39	
One year's interest at 6 per cent .	2,927.78	
	<hr/>	\$51,724.17
Expenses of institutes 1886-87	1,917.06	
	<hr/>	
Balance June 1, 1887		\$49,807.11

UNCLAIMED SAVINGS BANK DEPOSITS.

In accordance with the provisions of chapter 6, Pamphlet Laws, 1885, the treasurer has received from

Henry O. Coolidge, assignee of Ashuelot Sav- ings Bank, Winchester, the sum of	\$85.79	
Balance in treasury June 1, 1886	566.01	
	<hr/>	
Total	\$651.80	
And has paid out	54.66	
	<hr/>	
Balance in treasury		\$597.14

This amount is subject to the demand of the depositors, and is reported in Trust Funds (page 7).

DETAILED STATEMENT OF RECEIPTS AND
DISBURSEMENTS.

RECEIPTS.

Cash in treasury June 1, 1886	.	.	.	\$84,353.06
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STATE TAX OF 1881-82-83-85.

Millsfield (balance)	\$59.38
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STATE TAX OF 1885.

Kilkenny	\$44.00
Pinkham's Grant	8.00
					<hr/>
					\$52.00

STATE TAX OF 1886.

Rockingham County.

Atkinson	.	.	.	.	\$628.00
Auburn	.	.	.	.	616.00
Brentwood	.	.	.	.	704.00
Candia	.	.	.	.	1,052.00
Chester	.	.	.	.	1,020.00
Danville	.	.	.	.	400.00
Deerfield	.	.	.	.	1,164.00
Derry	.	.	.	.	1,856.00
East Kingston	.	.	.	.	488.00
Epping	.	.	.	.	1,400.00
Exeter	.	.	.	.	5,728.00
Fremont	.	.	.	.	508.00
Greenland	.	.	.	.	940.00
Hampstead	.	.	.	.	840.00
Hampton	.	.	.	.	1,264.00
Hampton Falls	.	.	.	.	592.00
Kensington	.	.	.	.	580.00
					<hr/>
<i>Amounts carried forward</i>					<hr/>
					\$19,780.00
					<hr/>
					\$84,464.44

<i>Amounts brought forward</i>	.	\$19,780.00	\$84,464.44
Kingston . . . . .	.	828.00	
Londonderry . . . . .	.	1,520.00	
Newcastle . . . . .	.	328.00	
Newington . . . . .	.	456.00	
Newmarket . . . . .	.	2,280.00	
Newton . . . . .	.	656.00	
North Hampton . . . . .	.	1,132.00	
Northwood . . . . .	.	1,116.00	
Nottingham . . . . .	.	816.00	
Plaistow . . . . .	.	568.00	
Portsmouth . . . . .	.	15,292.00	
Raymond . . . . .	.	772.00	
Rye . . . . .	.	1,544.00	
Salem . . . . .	.	1,100.00	
Sandown . . . . .	.	348.00	
Seabrook . . . . .	.	552.00	
South Hampton . . . . .	.	424.00	
South Newmarket . . . . .	.	964.00	
Stratham . . . . .	.	1,284.00	
Windham . . . . .	.	724.00	
		<hr/>	\$52,484.00

Stratford County.

Barrington . . . . .	.	\$1,340.00
Dover . . . . .	.	18,700.00
Durham . . . . .	.	1,520.00
Farmington . . . . .	.	2,748.00
Lee . . . . .	.	888.00
Madbury . . . . .	.	664.00
Middleton . . . . .	.	232.00
Milton . . . . .	.	1,116.00
New Durham . . . . .	.	544.00
Rochester	6,292.00
Rollinsford	2,576.00

<i>Amounts carried forward</i>	.	\$36,620.00	\$136,948.44
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<i>Amounts brought forward</i>	.	\$36,620.00	\$136,948.44
Somersworth	5,760.00	
Strafford	1,148.00	
		<hr/>	\$43,528.00

Belknap County.

Alton	. . . . .	\$1,212.00	
Barnstead	. . . . .	1,216.00	
Belmont	. . . . .	1,140.00	
Center Harbor	. . . . .	504.00	
Gilford	. . . . .	2,740.00	
Gilmanton	. . . . .	1,144.00	
Laconia	. . . . .	4,548.00	
Meredith	. . . . .	1,708.00	
New Hampton	. . . . .	740.00	
Sanbornton	. . . . .	1,168.00	
Tilton	. . . . .	1,472.00	
		<hr/>	\$17,592.00

Carroll County.

Albany	. . . . .	\$192.00	
Bartlett	. . . . .	512.00	
Brookfield	. . . . .	308.00	
Chatham	. . . . .	232.00	
Conway	. . . . .	1,468.00	
Eaton	. . . . .	276.00	
Effingham	. . . . .	476.00	
Freedom	. . . . .	588.00	
Hart's Location	. . . . .	60.00	
Jackson	. . . . .	336.00	
Madison	. . . . .	316.00	
Moultonborough	. . . . .	764.00	
Ossipee	. . . . .	1,096.00	
Sandwich	1,008.00	
Tamworth	832.00	

<i>Amounts carried forward</i>	.	<hr/>	<hr/>	\$8,464.00	\$198,068.44
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<i>Amounts brought forward</i>	.	\$8,464.00	\$198,068.44
Tuftonborough	592.00	
Wakefield	1,236.00	
Wolfeborough . . . . .	.	2,240.00	
		<hr/>	\$12,532.00

Merrimack County.

Allenstown	\$1,600.00
Andover	1,184.00
Boscawen	1,636.00
Bow	956.00
Bradford	1,004.00
Canterbury	1,240.00
Chichester	700.00
Concord	25,372.00
Danbury	608.00
Dunbarton	1,056.00
Epsom	800.00
Franklin	4,556.00
Henniker	1,572.00
Hill	424.00
Hooksett	1,652.00
Hopkinton	2,476.00
Loudon	1,416.00
Newbury	632.00
New London	920.00
Northfield	1,032.00
Pembroke	3,072.00
Pittsfield	2,112.00
Salisbury	776.00
Sutton	848.00
Warner	1,880.00
Webster	788.00
Wilmot	664.00
	<hr/>
	\$60,976.00
<i>Amount carried forward</i>	\$271,576.44

Amount brought forward . . . \$271,576.44

Hillsborough County.

Amherst	\$1,828.00
Antrim	1,172.00
Bennington	480.00
Bedford	1,412.00
Brookline	628.00
Deering	560.00
Francestown	1,084.00
Goffstown	2,648.00
Greenfield	656.00
Greenville	1,204.00
Hancock	792.00
Hillsborough	1,664.00
Hollis	1,624.00
Hudson	1,368.00
Litchfield	616.00
Lyndeborough	588.00
Manchester	48,404.00
Mason	712.00
Merrimack	1,468.00
Milford	4,040.00
Mont Vernon	688.00
Nashua	21,404.00
New Boston	1,616.00
New Ipswich	1,228.00
Pelham	1,116.00
Peterborough	3,364.00
Sharon	156.00
Temple	432.00
Weare	2,084.00
Wilton	2,008.00
Windsor	100.00
	<hr/>
	\$107,144.00
<i>Amount carried forward</i>	<hr/> \$378,720.44

Amount brought forward . . . \$378,720.44

Cheshire County.

Alstead	\$1,304.00	
Chesterfield	1,320.00	
Dublin	756.00	
Fitzwilliam	1,124.00	
Gilsum	772.00	
Hinsdale	1,900.00	
Harrisville	756.00	
Jaffrey	1,892.00	
Keene	13,660.00	
Marlborough	1,384.00	
Marlow	900.00	
Nelson	344.00	
Richmond	588.00	
Rindge	1,172.00	
Roxbury	132.00	
Sullivan	456.00	
Swanzey	1,696.00	
Surry	424.00	
Stoddard	420.00	
Troy	884.00	
Walpole	2,964.00	
Westmoreland	1,556.00	
Winchester	2,580.00	
	<hr/>	\$38,984.00

Sullivan County.

Aeworth	\$876.00
Cornish	1,196.00
Croydon	468.00
Charlestown	2,108.00
Claremont	5,484.00
Goshen	380.00

Amounts carried forward . \$10,512.00

 \$417,704.44

<i>Amounts brought forward</i>	. \$10,512.00	\$417,704.44
Grantham	344.00	
Langdon	604.00	
Lempster	512.00	
Newport	3,256.00	
Plainfield	1,212.00	
Springfield	360.00	
Sunapee	644.00	
Unity	636.00	
Washington	672.00	
	<hr/>	\$18,752.00

Grafton County.

Alexandria	\$480.00
Ashland	940.00
Bath	1,016.00
Benton	212.00
Bethlehem	1,192.00
Bridgewater	276.00
Bristol	1,344.00
Campton	708.00
Canaan	1,192.00
Dorchester	276.00
Easton	232.00
Ellsworth	64.00
Enfield	1,652.00
Franconia	572.00
Grafton	796.00
Groton	304.00
Hanover	2,524.00
Haverhill	2,176.00
Hebron	232.00
Holderness	452.00
Landaff	464.00
Lebanon	4,716.00

<i>Amounts carried forward</i>	. \$21,820.00	\$436,456.44
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<i>Amounts brought forward</i>					\$21,820.00	\$436,456.44
Lincoln	92.00	
Lisbon	1,756.00	
Littleton	2,856.00	
Livermore	.	.	.	.	104.00	
Lyman	.	.	.	.	376.00	
Lyme	.	.	.	.	1,176.00	
Monroe	.	.	.	.	456.00	
Orange	.	.	.	.	172.00	
Orford	.	.	.	.	996.00	
Piermont	.	.	.	.	724.00	
Plymouth	.	.	.	.	1,792.00	
Rumney	.	.	.	.	780.00	
Thornton	.	.	.	.	332.00	
Warren	.	.	.	.	648.00	
Waterville	.	.	.	.	56.00	
Wentworth	.	.	.	.	536.00	
Woodstock	.	.	.	.	140.00	
					<hr/>	\$34,812.00

Coös County.

Berlin	.	.	.	.	\$612.00	
Cambridge	.	.	.	.	44.00	
Carroll	.	.	.	.	468.00	
Clarksville	.	.	.	.	176.00	
Colebrook	.	.	.	.	1,316.00	
Columbia	.	.	.	.	504.00	
Dalton	.	.	.	.	344.00	
Dummer	.	.	.	.	168.00	
Errol	.	.	.	.	144.00	
Gorham	.	.	.	.	796.00	
Jefferson	.	.	.	.	508.00	
Lancaster	.	.	.	.	2,188.00	
Milan	456.00	
Northumberland	728.00	

<i>Amounts carried forward</i>	.	\$8,452.00	\$471,268.44
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<i>Amounts brought forward</i>	.	\$8,452.00	\$471,268.44
Pittsburg	584.00	
Randolph	140.00	
Shelburne . . . . .	.	212.00	
Stark . . . . .	.	444.00	
Stratford . . . . .	.	832.00	
Stewartstown . . . . .	.	608.00	
Whitefield . . . . .	.	1,148.00	
Dixville . . . . .	.	36.00	
Irving's Grant . . . . .	.	8.00	
Gilmanton and Atkinson Acad-			
emies' Grant . . . . .	.	44.00	
Dix's Grant . . . . .	.	12.00	
Millsfield . . . . .	.	44.00	
Sargent's Purchase . . . . .	.	52.00	
Success . . . . .	.	28.00	
Wentworth's Location . . . . .	.	32.00	
Low and Burbank's Grant . . . . .	.	28.00	
Crawford's Purchase . . . . .	.	52.00	
Chandler's Purchase . . . . .	.	4.00	
Nash and Sawyer's Location . . . . .	.	16.00	
Odell's Township . . . . .	.	68.00	
Thompson and Meserve's Pur-			
chase . . . . .	.	44.00	
Second College Grant . . . . .	.	28.00	
Bean's Purchase . . . . .	.	44.00	
Green's Grant . . . . .	.	112.00	
Martin's Location . . . . .	.	8.00	
Crawford's Grant . . . . .	.	52.00	
Cutt's Grant . . . . .	.	12.00	
Kilkenney . . . . .	.	44.00	
Pinkham's Grant . . . . .	.	8.00	
		<hr/>	\$13,196.00
<i>Amount carried forward</i>	.	.	\$484,464.44

Amount brought forward . . . \$484,464.44

Foreign Insurance Companies.

American Surety, New York . . .	\$1.12
Accident, Montreal	6.83
Ætna Life, Hartford, Ct.	253.27
Connecticut Mut'l, Hartford, Ct. . .	270.73
Connecticut Gen'l, Hartford, Ct. . .	41.62
Equitable Life Assurance Society, New York city	124.80
Fidelity and Casualty, N. Y.	16.23
Guarantee, Montreal	2.80
Hartford Steam Boiler and In- spection Company	66.30
John Hancock, Boston	12.55
Manhattan Life, New York city . . .	37.76
Massachusetts Mutual, Spring- field, Mass.	836.34
Metropolitan, New York city	168.24
Mutual Life, New York city	638.82
Mutual Benefit, Newark, N. J. . . .	121.05
National Life, Montpelier, Vt. . . .	43.47
New England Mutual Life, Bos- ton, Mass.	22.76
New York Life, New York city	215.76
Northwestern Mutual, Milwau- kee, Wis.	86.60
Phoenix Mutual, Hartford, Ct.	272.08
Penn Mutual	108.82
State Mutual, Worcester, Mass. . . .	41.84
Travelers', Hartford, Ct.	358.45
United States, N. Y.	22.10
Union Mutual, Portland	76.05
Vermont Life, Burlington	14.14

Amounts carried forward . \$3,860.53 \$484,464.44

<i>Amounts brought forward</i>	. \$3,860.53	\$484,464.44
Washington Life, New York	. 14.54	
	<hr/>	\$3,875.07

Home Companies.

N. H. Fire Insurance Co. . .	\$5,000.00	
Granite State Insurance Co. . .	2,000.00	
Peoples Fire Insurance Co. . .	2,500.00	
Capitol Fire Association . . .	500.00	
	<hr/>	\$10,000.00

SAVINGS BANK TAX OF 1886.

As per table in Appendix	\$469,747.21
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RAILROAD TAX OF 1886.

As per table in Appendix	\$208,182.72
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INTEREST.

Interest on deposits	\$1,416.81
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LICENSE FEES, PEDDLERS.

Rockingham county	\$50.00	
Strafford county	20.00	
Carroll county	10.00	
Merrimack county	10.00	
Cheshire county	30.00	
Sullivan county	20.00	
Grafton county	20.00	
Coös county	30.00	
	<hr/>	\$190.00

LICENSE FEES, FERTILIZERS.

Pacific Guano Co. . . .	\$50.00	
Bradley Fertilizer Co. . . .	50.00	
E. Frank Coe	50.00	
J. A. Tucker & Co. . . .	50.00	
Bowker Fertilizer Co. . . .	50.00	
Bowker Fertilizer Co., arrearage	50.00	
	<hr/>	
<i>Amounts carried forward</i> . .	\$300.00	\$1,177,876.25

<i>Amounts brought forward</i>	\$300.00	\$1,177,876.25
Orient Guano Manufacturing Co.	50.00	
American Manufacturing Co.	50.00	
Crocker Fertilizer and Chemical Co.	50.00	
Williams & Clark Co.	50.00	
Williams & Clark Co., arrearage	50.00	
	<hr/>	\$550.00

TAX ON TELEPHONE COMPANIES FOR 1886.

As per table in Appendix	\$195.65
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TAX ON TELEGRAPH COMPANIES FOR 1886.

As per table in Appendix *	\$5,806.73
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EXPENSES OF RAILROAD COMMISSIONERS.

Assessments by board of equalization on railroad corporations, for expenses of board from June 1, 1885, to June 1, 1886, as per table in Appendix	\$7,571.08
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UNCLAIMED SAVINGS BANK DEPOSITS.

Henry O. Coolidge, assignee:	
Ashuelot Savings Bank, Winchester	\$85.79

ESCHEATED ESTATES.

Solon A. Carter, Concord, administrator estate Daniel Lee	\$280.76
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MISCELLANEOUS.

Sales of public property (janitor)	\$12.00
Special road tax of 1881 (balance due from Millsfield)	19.64
	<hr/>
	\$31.64

Total receipts	\$1,192,397.90
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* Includes Western Union Telegraph Co. tax of 1884, \$1,855.05
Western Union Telegraph Co. tax of 1885, 1,743.00

Total \$3,598.05

DISBURSEMENTS.

EXECUTIVE DEPARTMENT.

Governor's salary . . .	\$1,000.00	
Honorable council . . .	1,554.00	
Printing blanks, etc. . .	87.10	
Incidental expenses . . .	54.00	
	<hr/>	\$2,695.10

SECRETARY'S DEPARTMENT.

Salary of secretary . . .	\$800.00	
Salary of deputy secretary .	600.00	
Indexing records, special appro-		
priation	1,200.00	
Printing blanks, etc. . .	2,100.81	
Incidentals	795.05	
	<hr/>	\$5,495.86

TREASURY DEPARTMENT.

Salary of treasurer . . .	\$1,800.00	
Clerk	500.00	
Printing report . . .	170.28	
Printing blanks . . .	220.03	
Auditing treasurer's account .	200.00	
Incidentals	249.55	
	<hr/>	\$3,139.86

ADJUTANT-GENERAL'S DEPARTMENT.

Salary of adjutant general .	\$1,000.00	
Printing report . . .	277.45	
Printing blanks . . .	320.19	
Clerk	500.00	
Incidentals	204.58	
Publication military records,		
special appropriation . .	1,200.00	
	<hr/>	\$3,502.22

<i>Amount carried forward</i> . . .		<hr/>	\$14,833.04
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Amount brought forward . . . \$14,833.04

DEPARTMENT OF PUBLIC INSTRUCTION.*

Salary of superintendent . . .	\$2,500.00	
Clerk	500.00	
Printing report	745.93	
Printing blanks, etc.	266.12	
Incidentals	187.96	
	<hr/>	\$4,200.01

INSURANCE DEPARTMENT.

Expenses commissioner . . .	\$134.25	
Printing report	249.87	
Printing blanks	86.91	
Incidentals	71.94	
	<hr/>	\$542.97

SUPREME COURT.

Salary of justices	\$19,100.00	
Salary of attorney-general . . .	1,606.32	
Salary of state reporter	1,000.00	
Clerks of supreme court	768.20	
Incidentals	565.27	
Printing, attorney-general . . .	12.25	
Vol. 63, N. H. Reports	1,050.00	
	<hr/>	\$24,102.04

PROBATE COURT.

Salaries of judges	\$5,125.00	
Salaries of registers	6,425.00	
	<hr/>	\$11,550.00

STATE LIBRARY.

Salary of librarian	\$800.00	
Increase library	500.00	
Special appropriation	498.19	
	<hr/>	
<i>Amounts carried forward</i> . . .	\$1,798.19	\$55,228.06

* For expenses teachers' institutes, see miscellaneous items, page 28.

<i>Amounts brought forward</i>	\$1,798.19	\$55,228.06
Printing report	48.25	
Printing blanks	36.87	
Printing Provincial Laws	870.00	
Incidentals	107.97	
	<hr/>	\$2,861.28

STATE HOUSE.

Salary of janitor	\$650.00	
Assistant janitor	529.18	
Gas	154.05	
Water	125.00	
Fuel	666.24	
Furniture	1,173.63	
Repairs	2,116.87	
Miscellaneous	342.82	
Repairs (special appropriation)	1,279.55	
	<hr/>	\$7,037.34

NEW HAMPSHIRE ASYLUM FOR THE INSANE.

Support of indigent insane	\$6,000.00	
Support of convict insane	2,962.10	
Printing reports, 1886 and 1887	524.12	
Library	100.00	
	<hr/>	\$9,586.22

EDUCATION OF DEAF AND DUMB.

American Asylum, Hartford	\$3,406.81	
Clarke Institution, Northampton	415.64	
City of Boston (Horace Mann School)	105.00	
A. C. Chase	70.00	
	<hr/>	\$3,997.45

EDUCATION OF THE BLIND.

Perkins Institution, Boston	\$3,600.00	
<i>Amount carried forward</i>		\$82,310.35

Amount brought forward . . . \$82,310.35

INDUSTRIAL SCHOOL.

Current expenses . . .	\$6,000.00	
Printing report . . .	141.44	
	<hr/>	\$6,141.44

STATE PRISON.

Salary of warden . . .	\$1,500.00	
Salary of chaplain . . .	800.00	
Prisoners' Aid Association . . .	36.80	
Printing report . . .	63.35	
Balance current expenses . . .	3,204.74	
Printing blanks . . .	23.00	
	<hr/>	\$5,627.89

N. H. COLLEGE OF AGRICULTURE AND MECHANIC
ARTS.

Appropriation \$3,000.00

NORMAL SCHOOL.

Appropriation	\$5,000.00	
Expense of trustees	36.60	
Printing report	89.99	
Printing blanks	80.55	
	<hr/>	\$5,207.14

FISH COMMISSIONERS.

Expenses of commissioners . . .	\$2,273.59	
Printing reports, 1886-1887 . . .	103.01	
Printing blanks	27.33	
	<hr/>	\$2,403.93

Amount carried forward . . . \$104,690.75

Amount brought forward . . . \$104,690.75

RAILROAD COMMISSIONERS.

Salaries and expenses of board *	\$7,244.40	
Printing report . . .	1,805.77	
Printing blanks . . .	256.23	
	<hr/>	\$9,306.40

BANK COMMISSIONERS.

Printing report . . .	\$1,275.82	
Printing blanks . . .	204.49	
Compensation, etc. . .	4,140.00	
Incidentals . . .	91.46	
	<hr/>	\$5,711.77

NEW HAMPSHIRE NATIONAL GUARD.

N. H. National Guard (regular appropriation) . . .	\$24,999.51	
Improvement of camp-ground (special appropriation) . .	9.50	
	<hr/>	\$25,009.01

BOARD OF AGRICULTURE.

Salary of secretary . . .	\$937.49	
Expenses of board . . .	948.51	
Printing report, 1885 . . .	1,096.99	
Printing blanks, etc. . .	121.61	
Incidentals . . .	127.59	
	<hr/>	\$3,232.19

WHITE MOUNTAIN ROADS.

Crawford's to Willey House . .	\$440.31	
Crawford's to Fabyan's . .	256.57	
	<hr/>	
<i>Amounts carried forward</i> . .	\$696.88	\$147,900.12

* This item is not included in statement of expenses, but is reported in assets as a claim upon the railroad corporations. (See chapter 101, Pamphlet Laws, 1883.)

<i>Amounts brought forward</i>	.	\$696.88	\$147,900.12
Franconia Notch	. . .	586.73	
Willey's and Bartlett	. . .	271.50	
Dixville	. . . . .	286.75	
Wentworth's Location and Errol		300.00	
Randolph	. . . . .	399.30	
Dummer	. . . . .	199.60	
Errol	. . . . .	300.00	
Moosilauke Tunnel Stream	.	42.50	
Second Conn. Lake	. . .	75.00	
Wentworth's Location	. .	75.00	
Millsfield	. . . . .	100.00	
Sandwich Notch	. . . . .	100.00	
		<hr/>	\$3,433.26

ABATEMENT STATE TAXES, 1886.

Charlestown	. . . . .	\$128.00	
Green's Grant	. . . . .	91.32	
		<hr/>	\$219.32

BOARD OF EQUALIZATION.

Salary of secretary	. . .	\$600.00	
Expenses of board	. . .	335.83	
Printing blanks, etc.	. . .	136.80	
		<hr/>	\$1,072.63

STEAMBOAT INSPECTOR.

Printing blanks	\$49.69
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BOUNTY ON WILD ANIMALS, ETC.

Bounty on 193 woodchucks, at 10c..	\$19.30	
Bounty on 91 bears, at \$10.	. .	910.00	
Bounty on 268 $\frac{3}{4}$ bushels grass-hoppers at \$1	. . . . .	268.75	
		<hr/>	\$1,198.05
<i>Amount carried forward</i>	. . .		\$153,923.07

Amount brought forward . . . \$153,923.07

STATE BOARD OF HEALTH.

Salary of secretary . . .	\$2,000.00	
Clerk	500.00	
Expenses of board . . .	867.30	
Incidentals	391.00	
Printing report	1,173.94	
Printing report, registration .	603.55	
Printing blanks, registration .	438.84	
	<hr/>	\$5,974.63

STATE HISTORIAN.

Incidentals	\$9.58	
Printing Vol. 2, Revolutionary War Rolls	2,249.03	
	<hr/>	\$2,258.61

INSURANCE TAX OF 1886.

To towns as per table in Appendix . . . \$7,311.75

SAVINGS BANK TAX OF 1886.

To towns as per table in Appendix	\$428,983.08	
To literary fund	40,764.13	
	<hr/>	\$469,747.21

RAILROAD TAX OF 1886.

To towns as per table in Appendix . . . \$106,991.50

PRINCIPAL OF DEBT.

Bonds, prison loan \$14,000.00

INTEREST.

Interest on surplus revenue . . .	\$11.73	
Kimball legacy	405.21	
	<hr/>	
<i>Amounts carried forward</i> . . .	\$416.94	\$760,206.77

<i>Amounts brought forward</i>	.	\$416,94	\$760,206.77
Coupons on bonds, and interest on registered bonds	.	171,651.00	
Interest on Agricultural College fund	.	4,800.00	
		<u> </u>	\$176,867.94

INDEPENDENT MILITIA.

Amoskeag Veterans	.	\$100.00	
Manchester War Veterans	.	100.00	
Manchester Cadets	.	100.00	
Lafayette Artillery Co.	.	100.00	
		<u> </u>	\$400.00

LEGISLATURE.

Publishing laws in newspapers	.	\$57.60	
Printing	.	1,122.85	
		<u> </u>	\$1,180.45

BOUNDARY SURVEY (MASS.).

Expenses of survey	.	\$6,416.00	
Printing	.	5.60	
		<u> </u>	\$6,421.60

CATTLE COMMISSIONERS.

Printing blanks	.	\$48.72	
Incidentals (postage)	.	15.00	
		<u> </u>	\$63.72

MISCELLANEOUS.

Teachers' institutes*	.	\$1,917.06	
Dedication Webster statue	.	2,257.32	
Idiotic and feeble-minded youth	.	258.28	
		<u> </u>	
<i>Amounts carried forward</i>	.	\$4,432.66	\$945,140.48

* This item is not included in statement of expenses, but is deducted from the income of teachers' institute fund. See statement on page 8.

<i>Amounts brought forward</i>	.	\$4,432.66	\$945,140.48
Auditing printer's accounts	.	81.00	
Gettysburg monuments	. .	1,500.00	
Copying muster rolls	. .	125.00	
Granite State Deaf Mute Mission		150.00	
License fees refunded (trees, etc.)		150.00	
Legacy and succession tax re-			
funded		87.37	
Duston monument		30.00	
Abstracts military records . .		8.50	
Advertising other than laws .		22.12	
Unclaimed savings bank deposits		54.66	
		<hr/>	\$6,641.31
Total disbursements			<hr/> \$951,781.79

FUNDED DEBT.

The bonds now outstanding, and dates of their maturity, are as follows :

September 1, 1889	\$150,000.00
Bond of 1873, due July 1, 1879	500.00
Municipal war loan bonds, due from Janu-	
ary 1, 1892, to January, 1905	2,206,100.00
Prison loan, due from January, 1888, to	
January, 1891 (\$14,000 each year) . . .	56,000.00
Bonds of 1879, due 1887, 1889, 1890, 1891,	
and 1892 (July 1, \$100,000 each year) .	500,000.00
	<hr/>
Total funded debt	\$2,912,600.00

STATE OF THE TREASURY JUNE 1, 1887.

LIABILITIES.

Floating debt	\$100.00
Trust funds (see page 7) . . .	166,461.30
Funded debt (see page 29) . . .	2,912,600.00
	<hr/>
Total liabilities	\$3,079,161.30

ASSETS.

Cash in the treasury	\$240,616.11
Expenses railroad commissioners from June 1, 1886, to June 1, 1887, and due from the railroad corporations agreeably to the provisions of chapter 101, Pamphlet Laws of 1883	7,244.40
	<hr/>
Total assets June 1, 1887	\$247,860.51
Deficiency, being net indebtedness June 1, 1887	\$2,831,300.79

SPECIAL ROAD TAXES.

I reported last year the sum of \$150 as due from Elkins' Grant on account of the assessment of special road taxes for 1877. As this tract was made a part of the town of Livermore by the Legislature in 1876, I am convinced that the collection of the tax could not be enforced and therefore drop the claim and close the account.

I also reported last year \$219.64 due from the following places on account of special road tax of 1881, to wit:

Cambridge	\$200.00
Millsfield (balance)	19.64
	<hr/>
	\$219.64

I have collected and accounted for the balance due from Millsfield (\$19.64). There is a question in regard to the validity of the assessment upon Cambridge and inasmuch as the Legislature in 1881 repealed the act under which the assessment was made, and because of the doubtful nature of the claim, I have dropped it and closed the account.

All arrearages of assessments on account of state taxes for the years 1881, 1882, 1883, and 1885, reported last year, have been collected and accounted for, and the entire assessment of \$400,000 for the year 1886 has been collected, so that for the first time for more than twenty years the treasurer is enabled to report a clean record in the matter of collection of state taxes.

CORPORATION TAXES.

There are pending before the supreme court appeals from the assessment of taxes by the State Board of Equalization, as follows :

Boston, Concord & Montreal R. R. tax of	
1880 (balance)	\$8,424.73
New England Telephone and Telegraph Co.	
tax of 1886	2,357.20
Direct United States Cable Co. tax of 1886	235.72

There is also pending a question of interest due from the Western Union Telegraph Co. on deferred payments of taxes assessed upon that corporation for the years 1884 and 1885.

It is probable that all the foregoing claims will be adjusted during the coming year.

CATHARINE FISK'S LEGACY.

The treasurer reports in trust funds (page 7) the sum of \$26,378.43 as a liability of the State. This sum, with interest from April 30, 1887, by the terms of the

trust, becomes payable during the present year to the New Hampshire Asylum for the Insane.

I would respectfully suggest the propriety of the continuance of the trust, and the annual payment to the said institution of the interest upon the same, instead of adding the annual interest to the principal year by year, as has been the practice heretofore.

DEPOSITS BY RAILROAD CORPORATIONS FOR LAND DAMAGES.

There have been no transactions on this account during the year, the balance in the treasurer's hands remaining the same as reported last year, to wit: \$403.50.

In Appendix will be found :

Page 37. The Assessment of the Tax on the Chartered Stock Fire Insurance Companies of New Hampshire.

Page 38. The Assessments on Railroad Corporations.

Page 39. The Assessments on Telegraph and Telephone Companies.

Pages 40, 41. The Assessments on Savings Banks.

Pages 43 to 46. The Distribution of Insurance, Railroad, and Savings Bank Taxes and Literary Fund.

Pages 47 to 64. Financial Statements required by Chapter 50, Pamphlet Laws of 1885.

The act quoted was enacted at my suggestion and the labor imposed upon the treasurer by it was undertaken as an experiment.

Two years' experience has satisfied me that the law should be amended in order to obtain satisfactory results.

The statistics published with the treasurer's report June 1, 1886, were only approximately correct, for reasons stated at that time.

Those contained in the tables accompanying this report (pages 47 to 64) are not altogether reliable, but have been compiled from the returns furnished by the

town officers without the careful revision necessary to insure accuracy. Such revision has been impossible under the circumstances.

The law requires that the returns should be filed with the treasurer on or before April 15. On the 12th of May five counties and about one half of the cities and towns were delinquent. May 28 two counties, one city, and seven towns had failed to make returns, although the attention of the officers had been repeatedly called to the matter.

The duties of the treasurer and his assistant during the month of May in the preparation of the annual report of the department, which is required to be furnished the public printer on or before the 1st of June, require their undivided attention, and leave no time for a revision of the financial statements which are received during the closing days of the fiscal year.

I would respectfully suggest that the treasurer be authorized to employ a competent statistician to take charge of this department, or that the publication of the financial statistics should not be required with the legitimate transactions of the treasurer's office, but independently, and that their publication should be delayed until the returns can be critically revised and exactness insured.

SOLON A. CARTER,
State Treasurer.

AUDITOR'S REPORT.

To His Excellency the Governor and Honorable Council:

We, the undersigned, auditor and committee of the council appointed by virtue of the provisions of chapter 83, Pamphlet Laws of 1881, report that we have carefully examined the accounts of the state treasurer for the fiscal year ending May 31, 1887, and find them correct.

Cash on hand June 1, 1886	.	\$84,353.06
Receipts during the year	.	1,108,044.84
Total	.	—————\$1,192,397.90
Expenditures during the year	.	951,781.79
Cash in treasury May 31, 1887	.	\$240,616.11

All payments are properly vouched and duly authorized.

The skill, experience, and exactness of the treasurer are too well known to need special notice from us. We find nothing to criticise, everything to commend.

Respectfully submitted.

ALPHEUS W. BAKER,
Auditor.

P. UPTON,
CHARLES W. TALPEY,
J. W. JEWELL,
Committee of the Council.

CONCORD, N. H., May 24, 1887.

APPENDIX.

APPENDIX.

TABULAR STATEMENT

Showing the number of shares in the various chartered stock insurance companies in the State, April 1, 1886, the amount of tax paid by them, the amount distributed to the several cities and towns, and the balance accruing as revenue to the State.

COMPANIES.	Shares.	Tax assessed.	To towns.	Revenue to State.
Capitol Fire Association...	1,000	\$500.00	\$372.75	\$127.25
Granite State	2,000	2,000.00	1,452.75	547.25
New Hampshire.....	5,000	5,000.00	3,622.50	1,377.50
Peoples.....	2,500	2,500.00	1,863.75	636.25
Totals	10,500	\$10,000.00	\$7,311.75	\$2,688.25

TABULAR STATEMENT

Exhibiting the assessments of railroad taxes for 1886, assessments on account of expenses of railroad commissioners to June 1, 1886, the amount distributed to the several cities and towns, and the balance accruing as revenue to the State.

CORPORATIONS.	Tax assessed.	To towns.	To State.	Expens- es of R.R. Com.
Ashuelot	\$1,927.65	\$951.79	\$975.86	\$80.56
Atlantic & St. Lawrence.....	6,468.10	1,617.02	4,851.08	355.73
Boston, Concord & Montreal.....	29,465.00	16,237.01	13,227.99	1,098.07
Boston & Maine	<i>a</i> 20,105.11	7,626.49	12,478.62	<i>b</i> 1,872.63
Cheshire.....	15,644.14	5,553.71	10,090.43	604.10
Concord.....	28,407.81	22,621.13	5,786.68	<i>c</i> 1,731.68
Concord & Claremont.....	7,004.86	1,885.61	5,119.25	230.89
Concord & Portsmouth	5,598.35	5,154.38	443.97	<i>d</i>
Dover & Winnepesaukee.....	4,419.75	2,340.03	2,079.72	<i>e</i>
Eastern.....	4,051.49	2,783.59	1,267.90	<i>e</i>
Fitchburg.....	384.11	96.03	288.08	21.47
Manchester & Lawrence.....	17,635.49	12,500.47	5,135.02	<i>d</i>
Manchester & North Weare.....	942.88	238.22	704.66	<i>d</i>
Monadnock.....	1,167.24	711.06	456.18	33.55
Mount Washington.....	1,532.18	346.21	1,185.97	36.24
Nashua, Acton & Boston.....	235.72	58.93	176.79	<i>d</i>
Nashua & Lowell	4,355.85	1,867.76	2,488.09	48.32
Northern	23,412.96	10,308.93	13,104.03	808.12
Peterborough.....	523.98	217.59	306.39	20.14
Portland & Ogdensburg.....	2,946.50	786.18	2,160.32	228.21
Portland & Rochester.....	353.58	88.95	264.63	13.42
Portsmouth & Dover.....	1,178.60	1,091.82	86.78	<i>e</i>
Portsmouth, Great Falls & Conway	5,198.62	1,711.65	3,486.97	<i>e</i>
Sullivan	5,893.00	1,473.25	4,419.75	275.19
Suncook Valley.....	1,621.64	1,582.61	39.03	<i>d</i>
West Amesbury Branch.....	294.65	73.66	220.99	5.37
Wilton.....	2,946.50	2,797.65	148.85	107.39
Wolfeborough	532.50	155.12	377.38	<i>e</i>
Worcester, Nashua & Rochester...	13,934.46	4,114.65	9,819.81	<i>e</i>
Totals	\$208,182.72	\$106,991.50	\$101,191.22	\$7,571.08

a Less allowance for interest on abatement tax of 1884 per decree of court.

b Includes entire Boston & Maine system.

c Includes entire Concord system.

d Included in Concord.

e Included in Boston & Maine.

TABULAR STATEMENT

Showing the valuation of the several telegraph companies within the limits of the State, and the tax assessed upon them by the state board of equalization for the year 1886.

COMPANIES.	Valuation.	Tax assessed.	Tax paid.
American	\$3,000.00	\$35.36	\$35.36
Atlantic.....	7,000.00	82.50	82.50
Chester & Derry	400.00	4.70	4.70
Direct United States Cable *.....	20,000.00	235.72	
Maine.....	10,000.00	117.86	117.86
Montreal.....	5,000.00	58.93	58.93
Mutual	2,000.00	23.57	23.57
Northern.....	5,000.00	58.93	58.93
Western Union.....	155,000.00	1,826.83	1,826.83
Totals.....	\$207,400.00	\$2,444.40	\$2,208.68

TABULAR STATEMENT

Showing the valuation of the several telephone companies within the limits of the State, and the tax assessed upon them by the state board of equalization for the year 1886.

COMPANIES.	Valuation.	Tax assessed.	Tax paid.
Brattleborough & Chesterfield.....	\$700.00	\$8.25	\$8.25
Brattleborough & Hinsdale.....	500.00	5.89	5.89
Colebrook, Stewartstown & Clarks- ville	100.00	1.18	1.18
Colebrook, Stewartstown & Connec- ticut Lake.....	1,500.00	17.68	17.68
New England Telephone & Tele- graph*.....	200,000.00	2,357.20	
Plymouth & Campton.....	5,000.00	58.93	58.93
Sratford & Colebrook	800.00	9.43	9.43
Winnepesaukee Bell.....	8,000.00	94.29	94.29
Totals	\$216,600.00	\$2,552.85	\$195.65

* This corporation has appealed to the supreme court for an abatement of the tax assessed, and the decision of the court has not been rendered at the date of this report.

TABULAR STATEMENT

Showing the amount of deposits in each Savings Bank in the State, April 1, 1886, the amount invested in real estate, the balance subject to tax, tax paid, amount distributed to towns, and balance accruing to the literary fund.

BANKS.	Aggregate deposits.	Am't real estate in N. H.	Am't of real estate in other States.	Balance subject to tax.	Tax paid.	To towns.	To literary fund.
Alton b.....	\$60,205.68	\$805.00	.....	\$59,400.68	\$594.01	\$548.87	\$22.08
Amoskeag.....	3,138,292.29	.....	.....	3,138,292.29	31,382.92	30,052.74	1,330.18
Ashtad.....	49,481.84	.....	.....	49,481.84	494.82	494.23	.59
Belknap County.....	634,287.56	16,540.68	.....	617,746.88	6,177.47	5,977.13	200.34
Bristol.....	453,596.86	7,439.00	\$32,515 00	413,642.86	4,136.43	4,133.93	2.50
Cheshire Provident Institution.....	2,044,747.45	101,608.51	4,089.33	1,939,049.61	19,390.50	16,802.96	2,587.54
City, Nashua.....	225,751.78	2,800.00	.....	222,951.78	2,229.52	1,949.06	280.46
Cocheco.....	227,054.55	7,536.87	.....	219,517.68	2,195.18	1,923.07	272.11
Concord.....	413,320.00	.....	.....	413,320.00	4,133.20	4,008.46	124.74
Connecticut River.....	521,644.86	1,400.00	.....	520,244.86	5,202.45	4,350.70	851.75
Contoocook Valley.....	20,853.38	.....	.....	20,853.38	208.53	183.55	24.98
Conway.....	58,789.91	3,863.00	.....	54,926.91	549.27	540.18	9.09
Dartmouth.....	755,497.00	.....	11,800.00	743,697.00	7,436.97	5,062.50	2,374.47
Dover Five Cent.....	165,728.02	.....	.....	165,728.02	1,657.28	1,534.20	123.08
Epping.....	62,771.50	.....	.....	62,771.50	627.71	627.59	.12
Farmington.....	341,104.01	4,000.00	.....	337,104.01	3,371.04	3,250.98	90.06
Farmers.....	28,988.14	.....	.....	28,988.14	289.88	289.88	.....
Fitzwilliam.....	143,818.28	600.00	.....	143,218.28	1,432.18	1,375.65	56.53
Francestown d.....	84,843.53	1,683.09	.....	83,160.44	831.60	831.33	8.87
Franklin.....	629,628.32	.....	.....	629,628.32	6,296.28	6,296.28	.....
Gorham.....	89,555.29	.....	.....	89,555.29	895.55	885.89	9.66
Guaranty, Keene.....	434,870.05	.....	.....	434,870.05	4,348.70	4,067.76	280.94
Guaranty, Manchester.....	710,609.04	.....	2,720.53	707,888.51	7,078.88	6,972.87	106.01
Hinsdale.....	220,793.16	650.00	.....	220,143.16	2,201.43	1,953.70	247.73
Iona.....	300,416.09	3,640.80	.....	296,775.29	2,967.75	2,901.27	66.48
Keene Five Cents.....	1,939,120.00	6,668.00	.....	1,932,452.00	19,924.52	18,575.03	1,349.49
Laconia e.....	805,258.77	37,469.00	.....	767,789.77	7,677.90	7,259.97	482.93
Lake Village.....	182,496.77	2,209.59	.....	180,287.18	1,802.87	1,802.87	.....
Lancaster.....	270,309.11	.....	.....	270,309.11	2,703.09	2,300.65	402.44
Lebanon f.....	712,909.90	1,875.11	20,896.64	690,138.15	6,901.38	5,613.55	1,306.58
Loan and Trust e f.....	1,706,158.33	9,015.39	374.85	1,696,138.09	16,967.68	16,439.59	444.34

Littleton.....	688,742.54	.....	688,742.54	6,887.43	6,327.33	560.10
Manchester.....	4,587,923.16	.....	4,587,923.16	45,879.23	43,296.52	2,582.71
Mason Village.....	82,745.61	.....	82,745.61	827.46	788.41	39.05
Mechanics, Manchester.....	225,350.02	.....	225,350.02	2,253.50	2,119.44	134.06
Mechanics, Nashua.....	401,424.30	.....	401,424.30	4,014.24	3,523.81	490.43
Meredith Village.....	373,351.11	.....	370,025.63	3,700.26	3,621.48	78.78
Merrimack County <i>h</i>	855,318.73	525.00	844,618.73	8,446.19	8,253.30	195.89
Merrimack River.....	2,088,095.99	10,700.00	2,088,095.99	20,880.96	19,899.16	981.80
Milford Five Cents.....	847,309.14	4,700.00	842,609.14	8,426.09	8,108.01	318.08
Monadnock <i>g</i>	436,498.44	506.84	431,629.55	4,316.29	3,978.71	342.65
Nashua.....	2,560,321.63	.....	2,560,321.63	25,603.22	24,275.56	1,327.66
New Hampshire <i>h</i>	2,626,713.94	44,000.00	2,582,713.94	25,827.14	24,764.77	1,059.37
New Hampshire Banking Co.....	745,104.55	.....	741,607.32	7,416.07	6,872.90	543.17
New Ipswich.....	11,087.00	.....	61,725.00	617.25	610.25	7.00
Newmarket.....	169,641.38	9,666.98	127,610.49	1,276.10	1,229.65	46.45
Newport.....	423,225.65	1,635.00	422,190.65	4,221.91	4,179.24	42.67
Norway Plains.....	584,627.53	12,635.74	500,355.65	5,003.56	4,430.99	582.57
Ossipee Valley.....	128,878.04	.....	128,878.04	1,288.78	1,138.05	150.73
Peoples.....	735,287.86	.....	735,287.86	7,352.88	7,133.24	219.64
Peterborough <i>g i</i>	611,960.66	5,500.53	606,460.13	6,064.60	5,936.11	135.72
Piscataqua.....	404,623.65	.....	404,623.65	4,046.24	2,889.09	1,157.15
Pittsfield.....	256,772.15	9,790.16	246,981.99	2,469.82	2,424.83	44.99
Portsmouth <i>b c</i>	3,217,238.55	13,302.40	3,132,769.58	31,327.69	22,001.38	9,285.32
Portsmouth Trust and Guaranty.....	488,665.42	.....	430,789.42	4,307.89	3,786.27	521.62
Rochester <i>c</i>	335,640.99	9,105.00	322,059.99	3,220.60	3,211.04	73.61
Rollinsford.....	517,446.91	.....	449,537.25	4,495.37	2,307.95	2,187.42
Sandwich.....	75,075.59	475.00	72,100.59	721.01	699.31	21.70
Security.....	131,029.04	.....	129,729.04	1,297.29	1,160.52	136.77
Somersworth.....	856,957.33	63,000.00	764,962.19	7,649.62	4,961.99	2,687.63
Squamscott.....	22,255.04	.....	22,255.04	222.55	219.44	3.11
Stratford County.....	3,016,495.31	2,142.93	3,014,352.38	30,143.52	30,086.36	57.16
Sullivan Savings Institution <i>d i</i>	1,125,943.92	13,000.00	1,110,343.92	11,103.44	9,705.82	1,386.72
Union Five Cents.....	346,402.68	1,600.00	338,437.96	3,384.38	3,349.23	35.15
Walpole.....	146,550.81	.....	146,550.81	1,465.51	1,194.67	270.84
Wilton.....	70,135.00	8,560.00	60,135.00	601.35	601.35	.....
Wolfeborough.....	93,345.93	5,268.35	88,077.58	880.78	880.46	.....
Totals.....	\$47,842,812.07	\$436,404.97	\$46,974,722.85	\$409,747.21	\$428,983.08	\$40,764.13

b, c, d, e, f, g, h, i, refer to memoranda on following page.

MEMORANDA

Explaining the distribution of savings bank taxes, where the banks hold real estate in excess of deposits in any town.

- b* The Portsmouth Bank holds real estate in Gilmanton.....\$2,305.59. 1 per cent, \$23.06. Taken from Alton Bank
- c* The Rochester Bank holds real estate in Wolfeborough.....\$6,405.00. 1 per cent, \$64.05. Taken from Portsmouth Bank.
- d* The Francestown Bank holds real estate in Washington.....\$860.00. 1 per cent, \$8.60. Taken from Sullivan Bank.
- e* The Laconia Bank holds real estate in Plymouth.....\$6,500.00. 1 per cent, \$65.00. Taken from Loan and Trust Bank.
- f* The Lebanon Bank holds real estate in Concord.....\$1,875.11. 1 per cent, \$18.75. Taken from Loan and Trust Bank.
- g* The Monadnock Bank holds real estate in Stoddard.....\$506.84. 1 per cent, \$5.07. Taken from Peterborough Bank.
- h* The Merrimack County Bank holds real estate in Hill.....\$300.00. 1 per cent, \$3.00. Taken from the New Hampshire Bank.
- i* The Peterborough Bank holds real estate in Washington.....\$229.85. 1 per cent, \$2.30. Taken from Sullivan Bank.

NOTE. — *b, c, d, e, f, g, h, and i* refer to statement on preceding page.

MEMORANDA

Showing gains and losses in distribution of savings bank tax, as per memoranda above.

BANKS.	Gains.	BANKS.	Losses.
Alton.....	\$23.06	Merrimack County.....	\$3.00
Loan and Trust.....	83.75	Monadnock.....	5.07
New Hampshire.....	3.00	Rochester.....	64.05
Peterborough.....	2.77	Francestown.....	8.60
Portsmouth.....	40.99	Laconia.....	65.00
Sullivan.....	10.90	Lebanon.....	18.75
Total.....	\$164.47	Total.....	\$164.47

TABULAR STATEMENT

Showing the amount divided to the several cities and towns for railroad tax, savings bank tax, insurance tax, and literary fund, for the year 1886.

TOWNS.	Insurance tax.	Railroad tax.	Savings bank tax.	Literary fund.
Aeworth.....			\$1,260.63	\$108.80
Albany.....			19.83	51.20
Alexandria.....		\$15.57	454.07	97.92
Allenstown.....		257.67	984.95	131.84
Alstead.....			1,698.56	136.96
Alton.....		394.71	1,511.41	181.76
Amherst.....	\$22.50	386.68	2,581.07	144.00
Andover.....		580.69	1,475.06	116.48
Antrim.....	58.50	4.79	2,303.88	152.96
Ashland.....	3.00	161.49	1,079.38	135.04
Atkinson.....		63.27	84.36	39.68
Auburn.....		32.96	792.20	99.20
Barnstead.....			1,601.68	140.80
Barrington.....		185.57	2,157.69	194.56
Bartlett.....		280.38	51.91	124.16
Bath.....		226.33	166.22	154.88
Bedford.....		42.18	2,038.97	160.00
Belmont.....		142.23	1,694.52	129.92
Bennington.....	8.25	18.84	593.45	51.84
Benton.....		53.68	13.52	42.88
Berlin.....		46.06	3.13	360.96
Bethlehem.....		178.31	626.68	194.56
Boscawen.....		578.53	1,261.27	161.28
Bow.....		147.34	1,754.91	94.72
Bradford.....		363.87	1,111.93	121.60
Brentwood.....	3.75	44.17	518.14	98.56
Bridgewater.....		8.71	303.40	53.76
Bristol.....		230.59	2,453.54	134.40
Brookfield.....		8.32	217.64	45.44
Brookline.....		4.33	623.63	76.80
Campton.....		72.37	606.42	138.88
Canaan.....	.75	481.09	1,156.59	195.20
Candia.....		79.47	2,089.82	132.48
Canterbury.....		225.36	1,548.68	144.00
Carroll.....			236.01	81.28
Center Harbor.....		3.36	785.23	46.72
Charlestown.....	1.88	869.84	2,643.77	218.88
Chatham.....			.05	73.60
Chester.....		85.78	1,186.98	130.56
Chesterfield.....		2.16	1,215.41	159.36
Chichester.....		219.69	1,024.76	111.36
Claremont.....	18.75	643.94	5,867.83	529.92
Clarksville.....			.06	48.00
Colebrook.....	.75		68.11	222.08
Columbia.....			15.75	89.60
Concord.....	141.00	17,363.74	25,132.39	1,649.92
Conway.....	7.50	893.95	471.15	306.56
Cornish.....		162.69	573.39	113.28
Croydon.....			242.77	75.52
Dalton.....		92.91	134.05	95.36
Danbury.....		211.58	914.10	104.96
Danville.....		20.58	301.23	52.48
Deerfield.....	37.50	471.67	1,606.86	158.72
Deering.....			588.99	79.36
Derry.....	7.50	440.61	2,267.40	239.36
Dorchester.....			137.49	90.88
Dover.....	159.00	4,240.63	19,122.06	981.76
Dublin.....			1,214.07	55.68
<i>Amounts carried forward...</i>	\$470.63	\$31,038.69	\$102,599.05	\$10,062.72

TABULAR STATEMENT. — *Continued.*

TOWNS.	Insurance tax.	Railroad tax.	Savings bank tax.	Literary fund.
<i>Amounts brought forward...</i>	\$470.63	\$31,038.69	\$102,599.05	\$10,062.72
Dummer.....		16.99	3.56	78.72
Dunbarton.....		268.84	1,636.44	89.60
Durham.....		301.06	1,713.84	92.16
East Kingston.....	7.50	157.06	59.27	60.16
Easton.....			146.33	34.56
Eaton.....			122.49	85.76
Effingham.....			245.34	121.60
Ellsworth.....			28.59	37.12
Enfield.....		1,682.57	1,790.07	175.36
Epping.....	17.63	543.86	1,008.98	152.96
Epsom.....	12.00	169.80	1,029.65	122.88
Errol.....			9.82	28.16
Exeter.....	45.00	2,402.09	2,377.23	304.64
Farmington.....		261.97	3,150.79	451.84
Fitzwilliam.....		147.04	1,923.05	154.24
Francestown.....	52.50	48.88	1,312.83	111.36
Franconia.....			335.57	77.44
Franklin.....	45.00	3,883.96	5,384.43	468.48
Freedom.....	3.75		529.48	103.68
Fremont.....		163.41	230.38	72.96
Gilford.....	42.75	845.77	3,526.11	302.08
Gilmantown.....		51.24	1,346.07	172.80
Gilsum.....	7.50		1,388.24	88.32
Goffstown.....	7.50	228.34	4,035.51	222.08
Gorham.....	1.50	629.45	659.13	213.76
Goshen.....			299.25	58.88
Grafton.....		215.54	1,101.99	132.48
Grantham.....		34.64	241.44	75.52
Greenfield.....		129.35	890.83	84.48
Greenland.....	22.50	347.26	775.88	65.92
Greenville.....	18.75	32.75	815.10	132.48
Groton.....		14.70	301.31	77.44
Hampstead.....	15.00	383.98	782.39	97.92
Hampton.....	37.50	199.88	546.83	114.56
Hampton Falls.....	30.00	145.55	277.38	81.28
Hancock.....	3.75	62.57	1,253.94	72.96
Hanover.....		483.00	2,993.28	278.40
Harrisville.....			880.03	103.68
Hart's Location.....			39.66	6.40
Haverhill.....	1.87	708.45	591.42	252.16
Hebron.....		.71	325.82	34.56
Henniker.....	30.00	176.05	2,390.40	104.32
Hill.....		171.37	559.40	67.84
Hillsborough.....	17.25	90.81	2,306.54	229.76
Hinsdale.....	11.25	24.63	1,738.32	286.08
Holderness.....		19.68	337.03	87.04
Hollis.....	41.25	190.22	1,653.78	139.52
Hooksett.....	48.75	309.80	1,619.27	142.08
Hopkinton.....	10.50	275.47	3,372.22	183.04
Hudson.....	20.25	401.46	1,704.06	110.08
Jackson.....			83.02	90.88
Jaffrey.....	7.50	115.90	2,941.88	165.76
Jefferson.....			78.74	139.52
Keene.....	378.00	5,872.93	16,315.70	812.16
Kensington.....		26.37	408.09	65.92
Kingston.....		156.91	137.07	132.48
Laconia.....	94.50	1,489.71	5,259.33	380.16
Lancaster.....	21.00	348.91	1,385.51	386.56
Landaff.....		41.32	492.96	91.52
<i>Amounts carried forward...</i>	\$1,522.88	\$55,310.94	\$191,492.12	\$19,169.28

TABULAR STATEMENT. — *Continued.*

TOWNS.	Insurance tax.	Railroad tax.	Savings bank tax.	Literary fund.
<i>Amounts brought forward...</i>	\$1,522.88	\$55,310.94	\$191,492.12	\$19,169.28
Langdon.....			830.29	41.60
Lebanon.....		1,831.03	4,574.16	566.40
Lee.....		384.55	1,066.85	87.68
Lempster.....			517.42	83.84
Lincoln.....			75.70	10.88
Lisbon.....		285.91	946.50	220.16
Litchfield.....	3.75	87.19	1,050.82	28.16
Littleton.....	7.50	642.22	2,810.19	372.48
Livermore.....			.06	14.08
Londonderry.....	8.25	466.88	2,305.68	159.36
Loudon.....		162.62	2,199.97	165.76
Lyman.....			218.59	86.40
Lyme.....		2.84	1,460.83	179.84
Lyndeborough.....	1.50	53.89	441.10	98.56
Madbury.....		107.33	1,071.91	40.32
Madison.....		22.99	326.81	90.24
Manchester.....	3,068.62	16,044.35	49,435.70	2,619.52
Marlborough.....		74.63	2,256.21	186.24
Marlow.....	3.75		2,101.44	90.24
Mason.....		58.83	468.09	87.68
Meredith.....	18.75	553.00	2,883.43	235.52
Merrimack.....		409.68	2,593.73	115.20
Middleton.....			442.48	35.20
Milan.....		70.75	28.63	117.12
Milford.....	123.00	804.36	5,987.48	325.12
Milton.....	11.25	40.30	1,664.69	187.52
Mont Vernon.....		84.15	932.12	63.36
Monroe.....			39.71	77.44
Moultonborough.....			697.88	160.00
Nashua.....	948.75	6,751.66	27,987.51	1,637.60
Nelson.....		1.71	581.50	73.60
New Boston.....	33.75	31.61	3,070.71	138.24
Newbury.....		73.52	1,053.71	73.60
Newcastle.....		10.80	723.14	55.04
New Durham.....		39.78	516.14	106.88
New Hampton.....		50.45	1,031.81	133.12
Newington.....		32.32	518.74	46.08
New Ipswich.....	3.75		1,019.62	150.40
New London.....		110.37	914.47	106.24
Newmarket.....	9.00	280.78	1,500.88	280.96
Newport.....	66.75	1,313.75	3,535.42	323.20
Newton.....		197.11	68.17	94.72
Northfield.....		289.25	1,070.38	56.96
North Hampton.....		73.91	884.23	71.04
Northumberland.....		749.81	191.95	183.04
Northwood.....	21.00	31.50	1,509.78	132.48
Nottingham.....		1.89	799.04	153.60
Orange.....		19.28	50.51	40.96
Orford.....		8.55	279.82	129.28
Ossipee.....	2.25	178.18	869.19	238.08
Pelham.....		115.02	404.39	103.68
Pembroke.....	120.75	415.04	3,035.12	225.28
Peterborough.....	196.13	206.05	4,576.35	284.16
Piermont.....			234.13	115.20
Pittsburg.....			13.00	67.20
Pittsfield.....	33.00	407.76	2,849.71	236.80
Plainfield.....		20.21	1,110.06	177.28
Plaistow.....		136.01	141.30	95.36
Plymouth.....	39.00	2,083.22	1,474.98	221.44
<i>Amounts carried forward...</i>	\$6,243.38	\$91,127.98	\$342,936.35	\$31,486.72

TABULAR STATEMENT. — *Continued.*

TOWNS.	Insurance tax.	Railroad tax.	Savings bank tax.	Literary fund.
<i>Amounts brought forward...</i>	\$6,243.38	\$91,127.98	\$342,936.35	\$31,486.72
Portsmouth	618.00	4,740.34	19,680.06	1,262.72
Randolph			34.92	26.24
Raymond		43.42	967.91	106.24
Richmond			786.51	91.52
Rindge		46.11	1,825.69	101.76
Rochester	90.00	1,731.05	7,539.76	809.60
Rollinsford	7.50	589.79	2,826.29	170.24
Roxbury			168.43	23.68
Rumney		434.49	613.26	156.80
Rye	7.50	57.05	2,629.44	124.16
Salem	3.75	522.86	441.51	165.12
Salisbury		17.10	1,093.63	102.40
Sanbornton		166.76	2,215.42	112.64
Sandown		79.44	236.61	55.68
Sandwich		45.51	735.98	174.72
Seabrook		152.66	85.71	223.36
Sharon			108.11	19.84
Shelburne		207.80	135.64	39.04
Somersworth	45.37	444.10	5,795.01	546.56
South Hampton		1.32	39.23	24.96
South Newmarket	28.50	697.01	619.41	98.56
Springfield	3.75	45.99	221.65	95.36
Stark		126.15	121.46	100.48
Stewartstown			31.13	142.08
Stoddard			534.43	71.68
Strafford			1,259.53	197.12
Stratford		358.87	313.60	172.16
Stratham	3.75	222.39	776.22	78.08
Sullivan			860.75	49.28
Sunapee		123.62	648.85	114.56
Surry		5.90	549.85	50.56
Sutton		51.05	1,179.40	108.16
Swanzey		129.00	2,671.35	221.44
Tamworth		10.65	518.27	144.64
Temple		1.28	418.47	51.20
Thornton			105.71	113.28
Tilton	22.50	626.56	2,170.90	156.80
Troy		123.90	1,271.97	99.84
Tuftonborough	1.50		185.94	102.40
Unity			669.84	103.04
Wakefield	20.25	487.28	1,300.24	188.80
Walpole		557.18	2,255.51	262.40
Warner	22.50	466.53	1,741.69	159.36
Warren		368.16	1,072.17	93.44
Washington	2.25		673.13	72.96
Waterville				7.04
Weare	78.75	152.71	3,727.07	198.40
Webster		129.30	1,226.35	59.52
Wentworth		534.21	286.57	120.96
Westmoreland		149.40	2,197.24	129.92
Whitefield		18.77	764.63	230.40
Wilmot		44.17	1,176.51	135.68
Wilton	34.50	542.87	2,722.85	181.12
Winchester		59.06	1,663.34	325.12
Windham		410.96	680.35	71.04
Windsor			118.50	3.84
Wolfeborough	78.00	140.75	1,317.07	264.96
Woodstock			35.66	58.24
Totals	\$7,311.75	\$106,991.50	\$428,983.08	\$40,657.92

FINANCIAL STATEMENTS

OF THE CITIES AND TOWNS COMPILED BY COUNTIES, IN ACCORDANCE WITH
THE PROVISIONS OF THE FOLLOWING ACT.

AN ACT to provide for the publication of financial statistics of the counties, cities, towns, and precincts within the State.

Be it enacted by the Senate and House of Representatives in General Court convened:

SECTION 1. The state treasurer is hereby directed to collect and publish hereafter with his annual reports a statement of the financial condition of the several counties, cities, towns, and precincts within this State, at the close of their respective fiscal years, next prior to the first day of April of each year. The county statements shall include the total debt, cash on hand, net debt, value of county buildings and farms, and the value of stock and other personal property thereon. The city and town statements shall include their assessed valuation, amount of taxes assessed for all purposes, tax rate, total debt, assets, cost of public works, net debt, and increase or reduction of debt during the preceding year. The statement of assets shall include cash on hand and bonds and items convertible into cash, but in no case shall the value of public buildings, lands, or public works be reported in assets.

SECT. 2. The state treasurer shall seasonably issue to the several boards of county commissioners, clerks of the several cities, and to the selectmen of the towns, suitable blanks upon which the statistics required by section 1 shall be reported, and it shall be the duty of the aforesaid officers to fill out and certify such returns and forward them to the state treasurer on or before the fifteenth day of April of each year.

SECT. 3. Clerks of cities and selectmen of towns shall include in their returns, under appropriate heads, the financial condition of all school, fire, water, or other precincts within their respective cities and towns.

[Approved August 13, 1885.]

ROCKINGHAM

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Atkinson	\$310,260.00	\$6,226.81	\$2.00	.....	\$190.20
2. Auburn	270,873.00	5,309.11	1.96	\$878.00	883.59
3. Brentwood....	311,596.00	6,147.53	1.95	.....	665.08
4. Candia	364,245.00	9,419.50	2.60	10,300.00	1,134.11
5. Chester	405,264.00	6,556.36	2.25	914.05	.....
6. Danville	201,703.00	3,142.56	1.50	6,195.00	126.32
7. Deerfield	513,476.00	6,880.00	1.34	2,400.00	800.00
8. Derry	809,752.00	7,929.25	1.00	12,210.98	6,050.21
9. East Kingston	240,200.00	2,834.36	1.18	4,300.00	.....
10. Epping	678,176.00	10,788.76	1.65	17,979.37	5,016.73
11. Exeter	2,709,542.00	29,910.97	1.12	26,000.00	2,744.03
12. Fremont	241,265.00	2,526.20	1.05	.....	560.83
13. Greenland....	373,586.00	9,101.85	2.35	12,500.00	7,170.44
14. Hampstead...	364,000.00	5,304.09	1.40	2,146.97	1,839.03
15. Hampton	667,642.00	16,010.82	2.39	3,960.22	1,128.16
16. Hamp. Falls..	280,430.00	4,374.71	1.56	5,144.00	1,243.53
17. Kensington...	273,364.00	3,495.00	1.25	1,000.00	658.87
18. Kingston	370,294.00	7,596.01	1.80	6,460.00	1,871.46
19. Londonderry.	563,706.00	8,455.59	1.50	4,975.32	.....
20. Newcastle	151,388.00	3,920.63	2.60	26,000.00	.....
21. Newington ...	206,484.00	2,064.84	1.00	....	415.80
22. Newmarket ..	1,078,734.00	13,324.24	1.22	15,296.43	.....
23. Newton	370,619.00	4,780.98	1.29	11,934.82	.....
24. No. Hampton.	532,042.00	5,830.71	1.00	4,234.07	.....
25. Northwood ...	495,255.00	7,908.47	1.58	21,513.53	5,915.08
26. Nottingham...	375,972.00	5,492.24	1.46	900.26	1,164.95
27. Plaistow	290,844.00	6,544.00	2.25	5,655.55	910.94
28. Portsmouth ..	6,138,916.00	104,361.86	1.70	488,466.01	380,482.01
29. Raymond	335,838.00	9,456.16	2.79	4,625.93	.....
30. Rye	551,957.00	6,789.07	1.23	500.00	227.31
31. Salem	592,424.00	8,718.80	1.50	17,354.17	12,611.23
32. Sandown	180,988.00	4,684.02	2.57	8,039.48	3,013.59
33. Seabrook	285,674.00	5,453.06	1.85	15,244.66	1,354.00
34. So. Hampton.	237,187.00	3,579.85	1.50	2,500.00	223.00
35. S. Newmarket	374,100.00	5,662.68	1.51	1,329.00	73.97
36. Stratham	571,411.00	4,864.12	.85	.....	1,409.64
37. Windham	361,034.00	2,699.54	.75	67.00	1,286.69
Aggregate....	\$23,080,241.00	\$358,144.75	\$1.55	\$741,024.82	\$441,170.80

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1.	\$190.20	.....	.....	.....
2.	5.59	b \$106.39	.....	.....
3.	665.08	.....	.....	.....
4. \$9,165.89	.....	b 2,249.87	.....	.....	Soldiers' bounties.
5. 914.05	.....	b 366.74	.....	.....
6. 6,068.68	.....	a 3,500.00	.....	.....	Town house.
7. 1,600.00	.....	a 400.00	.....	.....	{ Suppression of Re-
8. 6,160.77	.....	b 1,070.36	.....	\$1,120.00	bellion.
9. 4,300.00	.....	b 900.00	.....	.....	Public works.
10. 12,962.64	.....	b 1,203.95	.....	.....	War.
11. 23,255.97	.....	a 1,868.01	\$4,997.22	.....	{ War debt and \$5,000
12.	560.83	.....	.....	.....	for schoolhouses.
13. 5,329.56	.....	b 500.00	.....	.....	Sewer.
14. 307.94	.....	b 802.36	.....	.....	{ Bounties for sol-
15. 2,832.06	.....	b 718.55	.....	.....	diers.
16. 3,900.47	.....	b 691.89	.....	.....
17. 341.13	.....	b 1,000.00	.....	.....	War.
18. 4,588.54	.....	b 298.54	400.00	.....
19. 4,975.32	.....	b 571.87	.....	.....
20. 26,000.00	.....	a 400.00	.....	.....	Late Rebellion.
21.	415.80	.....	.....	.....
22. 15,296.43	.....	b 382.44	.....	.....	War.
23. 11,934.82	.....	b 1,144.64	.....	.....	War.
24. 4,234.07	.....	a 1,574.17	.....	.....	Town house.
25. 15,598.45	.....	b 1,382.27	.....	.....	War.
26.	264.69	b 1,239.75	.....	.....
27. 4,744.61	.....	b 615.32	.....	.....	War.
28. 107,984.00	.....	a 23,045.97	20,851.75	.....	Sewers.
29. 4,625.93	.....	b 1,190.76	.....	.....
30. 272.69	.....	b 1,227.84	.....	.....
31. 4,742.94	.....	b 1,631.67	.....	.....	War.
32. 5,025.89	.....	b 2,036.25	.....	.....	{ Late Rebellion and
33. 13,890.66	.....	b 1,063.74	.....	.....	loss on railroad
34. 2,277.00	.....	a 276.25	.....	.....	stock.
35. 1,255.03	.....	a 1,402.40	.....	.....	{ War of the Rebel-
36. 1,409.64	.....	.....	.....	.....	lion.
37. 1,219.69	.....	.....	.....	.....	War.
		.....	.....	.....	{ Trust fund and
		.....	.....	.....	general purposes.
\$304,585.54	\$4,731.52	a \$32,466.80	\$26,248.97	\$1,120.00	
		b 22,395.20			
		* \$10,071.60			

* Net increase.

STRAFFORD

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Barrington....	\$522,548.00	\$17,000.00	\$3.56	\$11,944.64	\$3,881.26
2. Dover <i>d</i>.....	.....	.....	.....	.....	.....
3. Durham....	572,390.00	5,724.15	1.00	.....	2,137.78
4. Farmington....	1,549,414.00	22,115.25	1.43	84,221.00	24,118.76
5. Lee.....	327,446.00	6,647.15	2.03	.....	502.07
6. Madbury.....	259,489.00	1,884.05	.73	.....	796.47
7. Middleton.....	107,520.00	4,730.88	4.40	8,571.93	1,775.30
8. Milton.....	506,610.00	5,319.40	1.05	.....	891.66
9. New Durham .	245,930.00	3,688.95	1.50	.....	872.70
10. Rochester.....	2,726,646.00	35,610.22	1.37	17,195.72	.....
11. Rollinsford ...	1,131,347.00	8,602.18	.83	.....	214.00
12. Somersworth.	2,691,002.00	40,231.71	1.50	.....	7,219.77
13. Strafford.....	506,922.00	12,222.99	2.42	19,237.08	4,471.97
Aggregate..	\$11,147,264.00	\$163,776.93	\$1.47	\$141,170.37	\$46,881.74

d No return received. Valuation for last year, \$8,145,348.00.

BELKNAP

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Alton.....	\$513,066.00	\$9,235.19	\$1.80	.....	\$775.02
2. Barnstead....	471,336.00	12,660.00	2.80	\$11,267.94	2,688.11
3. Belmont	488,576.00	12,996.12	2.66	5,332.85	.....
4. Center Harbor	222,962.00	6,579.42	2.96	.....	933.60
5. Gilford	1,284,788.00	24,672.80	1.87	19,975.14	14,756.47
6. Gilmanton....	530,138.00	16,328.25	3.08	14,887.66	2,481.55
7. Laconia.....	2,022,376.00	35,731.50	1.77	18,135.13	15,219.13
8. Meredith.....	656,603.00	11,384.06	1.71	.....	1,739.12
9. New Hampton	325,327.00	10,764.27	3.25	2,300.00	1,445.42
10. Sanbornton...	377,885.00	7,757.70	2.00	3,676.65	2,136.53
11. Tilton.....	639,108.00	10,020.84	1.56	12,439.00	5,038.68
Aggregate..	\$7,532,165.00	\$158,130.15	\$2.09	\$88,014.37	\$47,213.63

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1. \$8,063.38	b \$2,372.47	War and town hall.
2. ....	.....	.....	.....	.....
3.	\$2,137.78	.....	.....	.....
4. 60,102.24	.....	b 4,054.53	.....	\$10,519.61
5.	502.07	.....	.....	.....
6.	796.47	.....	.....	.....
7. 6,796.63	.....	b 2,720.32	.....	.....
8.	891.66	{ Highways, side- walks and sewers.
9.	872.70	.....	.....	.....
10. 17,195.72	.....	a 2,162.03	.....	.....
11.	214.00	.....	.....	.....
12.	7,219.77	.....	\$20,000.00	.....
13. 14,765.11	.....	b 4,519.45	.....	.....
\$106,923.08	\$12,634.45	b \$13,666.77 a 2,162.03 * \$11,504.74	\$20,000.00	\$10,519.61	

* Net decrease.

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1.	\$775.02	b \$381.12	.....	.....	War debt.
2. \$8,579.83	.....	b 3,554.86	.....	.....
3. 5,332.85	.....	b 4,088.60	.....	.....
4.	933.60	.....	.....	.....
5. 5,218.67	.....	a 516.64	.....	\$6,812.42	War.
6. 12,406.11	.....	b 3,550.34	.....	.....	War.
7. 2,916.00	.....	b 4,289.00	.....	11,700.00	
8.	1,739.12	.....	\$800.00	.....
9. 854.58	.....	b 1,114.98	.....	.....
10. 1,540.12	.....	a 292.34	.....	.....
11. 7,400.32	.....	b 2,781.65	.....	.....	{ War of the Rebel- lion.
\$44,248.48	\$3,447.74	b \$19,760.55 a 808.98 * \$18,951.57	\$800.00	\$18,512.42	

* Net decrease.

CARROLL

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Albany.....	\$82,758.00	\$1,366.59	\$3.65	\$18,618.29	\$1,475.73
2. Bartlett	275,058.00	7,289.04	2.65	6,309.84	2,817.85
3. Brookfield	147,552.00	2,876.93	1.95	1,440.75	773.37
4. Chatham.....	.....	.....	.....	.....	.....
5. Conway	712,810.00	16,662.11	2.29	25,098.79	4,984.22
6. Eaton	133,484.00	3,883.23	2.91	.....	81.81
7. Eflingham	229,576.00	5,604.43	2.43	4,803.63	2,516.78
8. Freedom	280,977.00	5,510.10	2.04	1,293.17	724.23
9. Hart's Locat'n	13,412.00	300.55	.21	.....	70.00
10. Jackson.....	208,606.00	4,221.16	2.00	.....	100.00
11. Madison	149,340.00	4,469.59	1.64	2,774.36	1,721.65
12. Moultonboro'.	360,253.00	7,745.43	2.15	.....	1,502.86
13. Ossipee	461,256.00	16,426.34	3.25	31,240.08	8,883.86
14. Sandwich	475,808.00	19,225.26	4.00	41,537.10	1,591.14
15. Tamworth	359,526.00	11,984.55	2.43	8,604.87	2,629.02
16. Tuftonboro' ..	282,510.00	7,737.04	2.74	15,811.28	917.81
17. Wakefield.. ..	560,980.00	9,776.33	1.80	9,654.37	1,057.31
18. Wolfeborough	1,082,498.00	29,240.64	2.70	61,699.00	4,698.12
Aggregate..	\$5,816,404.00	\$154,319.32	\$2.65	\$228,885.53	\$36,545.76

COUNTY.

Net debt.		Surplus.	Increase (a) or decrease (b) during year.		Purpose for which debt was incurred.	
1.	\$17,242.56	a	\$317.35	War debt.	
2.	3,491.99	.....	b	1,374.92	
3.	667.38	.....	b	659.93	
4.	.....	.....	.....	.....
5.	20,114.57	.....	b	1,891.16	
6.	\$81.81	War debt.	
7.	2,286.85	.....	b	1,121.94	
8.	568.94	b	1,016.46	War.	
9.	70.00	War.	
10.	.....	100.00	.....	.....
11.	1,052.71	.....	b	495.05	
12.	1,502.86	War.	
13.	22,356.22	.....	a	350.00	
14.	39,945.96	.....	b	3,265.14	
15.	5,975.85	.....	b	1,114.88	
16.	14,893.47	.....	b	766.05	
17.	8,597.06	b	2,045.86	War.	
18.	57,000.88	b	4,840.72	War debt and aid to R. R.	
\$194,094.44		\$1,754.67	b	\$18,592.11		
			a	667.35		
			* \$17,924.76			

* Net decrease.

MERRIMACK

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Allenstown....	\$655,218.00	\$5,312.62	\$0.75	\$235.76	\$284.50
2. Andover.....	489,524.00	6,083.95	1.22	396.00	8,485.20
3. Boscawen	691,901.00	14,444.82	1.20	400.00	602.29
4. Bow.....	378,410.00	3,140.80	.83		
5. Bradford.....	465,485.00	7163.30	1.61	12,706.67	1,785.63
6. Canterbury....	524,430.00	5,928.30	1.01	1,907.43	2,230.30
7. Chichester	294,608.00	4,265.65	1.52	8,586.23	928.43
8. Concord	9,703,458.00	158,994.83	1.68	551,864.59	76,242.18
9. Danbury	244,158.00	5,322.33	2.18	1,055.20	1,539.63
10. Dunbarton....	374,839.00	4,354.33	1.16	1,893.00	1,043.38
11. Epsom.....	332,126.00	8,301.60	2.00	3,741.91	804.94
12. Franklin.....	1,914,075.00	32,055.00	1.59	52,800.00	7,239.00
13. Henniker.....	634,715.00	7,243.30	1.14		3,151.03
14. Hill	177,638.00	3,888.17	2.14	.....	.....
15. Hooksett	672,705.00	6,675.29	.97		2,577.07
16. Hopkinton....	998,920.00	11,489.20	1.49		2,097.52
17. Loudon.....	547,410.00	6,963.39	1.20	18,252.10	3,415.08
18. Newbury.....	237,418.00	2,907.92	1.20	734.26	466.26
19. New London..	385,203.00	6,818.09	1.77	1,323.33	1,183.35
20. Northfield	466,553.00	6,765.02	1.45	10,442.50	4,941.79
21. Pembroke.....	1,237,816.00	19,492.02	1.50		1,375.42
22. Pittsfield	884,654.00	18,225.00	2.12	50,671.67	11,336.68
23. Salisbury.....	325,794.00	4,914.05	1.51	1,186.19	431.35
24. Sutton	365,079.00	6,807.35	1.87	.....	1,151.39
25. Warner.....	785,534.00	11,472.73	1.46	30,494.55	2,966.82
26. Webster.....	314,688.00	6,398.64	2.10	5,206.67	1,011.89
27. Wilmot.....	279,572.00	3,103.25	1.11	6,815.21	534.73
Aggregate...	\$24,381,931.00	\$378,530.95	\$1.55	\$760,713.27	\$137,825.86

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1.	\$48.74	.....	.....	.....	Highway.
2.	8,089.20	.....	.....	.....
3.	202.29	b \$2,120.00	\$1,188.95	\$2,000.00	
4. ....	.....	.....	.....	.....
5. \$10,921.04	.....	b 3,586.66	.....	.....	War.
6.	322.87	b 945.13	.....	.....
7. 7,657.80	.....	b 1,000.00	.....	.....	War.
8. 475,622.41	.....	b 24,512.34	575,521.49	c 432,115.00	{ Water-works and general pur- poses.
9.	484.43	b 709.95	.....	.....
10. 849.62	.....	a 849.62	.....	102.00	Highway.
11. 2,936.97	.....	b 3,577.23	.....	.....	{ War, railroad, and law suit.
12. 45,561.00	.....	b 5,000.00	.....	.....	Schoolhouses.
13.	3,151.03	.....	.....	.....
14. ....	.....	.....	.....	.....
15.	2,577.07	.....	.....	.....
16.	2,097.52	.....	.....	.....
17. 14,837.02	.....	b 128.09	.....	.....
18. 268.00	.....	a 115.37	.....	.....	Pauper account.
19. 139.98	.....	b 902.54	.....	.....
20. 5,500.71	.....	b 2,091.90	.....	.....	War.
21.	1,375.42	.....	.....	.....
22. 39,334.90	.....	b 484.69	1,181.92	.....	{ War and aid to railroad.
23. 754.84	.....	a 661.94	.....	.....
24.	1,151.39	.....	.....	.....
25. 27,527.73	.....	b 205.80	.....	.....
26. 4,194.78	.....	b 1,972.01	.....	.....	War.
27. 6,280.48	.....	b 774.24	.....	.....	War.
\$642,387.37	\$19,499.96	b \$48,010.58	\$577,892.36	\$434,217.00	
		a 1,626.93			
		* \$46,383.65			

* Net decrease.

c Included in total debt.

HILLSBOROUGH

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Amherst.....	\$713,750.00	\$8,514.98	\$1.16	.....	\$1,519.70
2. Antrim.....	520,095.00	6,761.00	1.30	\$1,375.00	1,226.68
3. Bennington....	209,426.00	4,120.18	1.85	13,629.73	926.32
4. Bedford.....	577,211.00	10,515.79	1.80	2,899.50	1,496.65
5. Brookline.....	276,577.00	2,212.62	.80	.....	5,021.20
6. Deering.....	218,724.00	7,130.40	3.26	.....	518.82
7. Francestown..	487,772.00	7,611.55	1.56	4,141.61	1,268.57
8. Goffstown.....	1,132,500.00	9,173.25	.81	.....	3,100.00
9. Greenfield.....	267,263.00	5,013.06	1.76	9,173.88	620.48
10. Greenville.....	601,435.00	8,420.05	1.40	5,234.66	272.23
11. Hancock.....	331,253.00	4,935.66	1.49	9,072.96	963.03
12. Hillsborough..	898,620.00	11,014.86	1.22	5,290.00	1,527.77
13. Hollis.....	707,495.00	7,074.95	1.00	7,899.94	429.56
14. Hudson.....	599,826.00	6,958.98	1.16	8,476.26	3,247.79
15. Litchfield.....	252,044.00	1,965.94	.78	.....	502.63
16. Lyndeborough	289,100.00	6,582.00	2.28	3,614.77	2,185.61
17. Manchester....	21,379,384.00	347,009.31	1.62	1,060,174.12	58,915.11
18. Mason.....	324,882.00	3,104.39	.96	.....	623.54
19. Merrimack....	549,478.00	5,022.19	.91	.....	3,388.81
20. Milford.....	1,528,462.00	20,828.87	1.35	10,778.00	1,438.17
21. Mont Vernon..	285,124.00	3,192.24	1.10	.....	372.88
22. Nashua.....	9,465,884.00	164,461.60	1.73	448,845.00	271,674.99
23. New Boston...	563,492.00	3,704.27	1.18	.....	2,809.17
24. New Ipswich..	560,282.00	9,432.00	1.72	2,667.30	5,277.02
25. Pelham.....	535,286.00	10,805.73	1.96	975.00	1,777.00
26. Peterborough..	1,443,361.00	15,155.29	1.05	72,095.16	5,219.83
27. Sharon.....	74,481.00	1,009.41	1.47	.....	329.17
28. Temple.....	191,073.00	2,462.12	1.22	.....	.....
29. Weare.....	763,212.00	9,463.56	1.24	1,035.53	1,785.61
30. Wilton.....	887,241.00	13,929.33	1.60	51,078.37	2,640.08
31. Windsor.....	45,201.00	350.66	.76	.....	284.59
Aggregate...	\$46,679,934.00	\$717,936.24	\$1.53	\$1,718,456.79	\$381,362.91

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1.	\$1,519.70				
2. \$148.42		b \$1,200.00			
3. 12,703.41		a 264.48			{ Bridge and aid to railroad.
4. 1,402.85		b 618.38			
5.	5,021.20			\$101.55	
6.	518.82				
7. 2,873.04		a 527.14			
8.	3,100.00			700.00	
9. 8,553.40		a 4,311.04			Schoolhouse.
10. 4,962.43		b 4,436.69			
11. 8,109.93		b 1,052.95			
12. 3,762.23		b 1,821.37		2,100.00	
13. 7,470.38		a 7,470.38			Town house. Bridge.
14. 5,228.47		b 513.93			
15.	502.63				
16. 1,429.16		b 111.06			
17. 1,001,259.01		a 24,967.10	\$1,176,689.31		
18.	623.54				
19.	3,388.81				
20. 9,339.83		b 995.83			Town house. { Aid to railroad and school- house.
21.	372.88				
22. 177,170.01		b 20,007.73			
23.	2,809.17				
24.	2,609.72				
25. ...	802.00				Highway. Town hall.
26. 66,875.33		a 10,000.00			
27. ...	329.17				
28. ...					
29.	750.08				
30. 48,438.29		b 2,909.96			{ War, town house and bridges.
31.	284.59				
\$1,359,726.19	\$22,632.31	a \$47,540.14	\$1,176,689.31	\$2,901.55	
		b 33,667.90			
		*\$13,872.24			

*Net increase.

CHESHIRE

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Alstead	\$556,684.00	\$11,800.27	\$2 10	\$1,724.16	\$3,017.98
2. Chesterfield ...	653,845.00	7,390.00	1.13	419.65	2,118.59
3. Dublin	345,583.00	4,681.10	1.35	787.50	722.42
4. Fitzwilliam ...	473,404.00	12,883.91	2.70	.....	949.66
5. Gilsum	305,687.00	6,314.60	1.85	1,028.89	295.99
6. Harrisville	308,711.00	5,712.31	1.85	21,000.00	2,129.09
7. Hinsdale	982,429.00	15,427.13	1.57	14,297.17	.....
8. Jaffrey	749,402.00	8,006.00	1.07	16,532.92	1,361.35
9. Keene	5,938,529.00	68,016.67	1.15	360,473.28	89,881.91
10. Marlow	343,478.00	1,434.66	.40	.....	581.24
11. Marlborough ..	589,304.00	8,912.95	1.50	16,144.17	1,458.22
12. Nelson	150,655.00	2,514.75	1.88	1,000.00	835.64
13. Richmond	241,250.00	6,138.41	2.40	464.37	2,317.05
14. Rindge	506,715.00	10,718.01	2.10	.....	2,073.89
15. Roxbury	61,110.00	1,081.76	1.77	.....	567.95
16. Swanzey	710,446.00	8,486.65	1.10	.....	1,616.86
17. Sullivan	181,695.00	4,324.12	2.38	382.91	1,363.33
18. Surry	160,143.00	1,419.02	.85	.....	896.28
19. Stoddard	136,112.00	3,308.83	1.72	7,680.28	1,569.17
20. Troy	376,108.00	4,250.02	1.13	1,385.65	954.48
21. Walpole	1,422,924.00	14,757.00	1.02	9,500.00	2,087.11
22. Westmoreland ..	554,341.00	8,592.28	1.55	.....	687.72
23. Winchester	1,411,724.00	16,451.29	1.15	2,017.62	2,378.26
Aggregate...	\$17,160,279.00	\$232,621.74	\$1.35	\$454,838.57	\$119,864.19

SULLIVAN

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Acworth	\$356,366.00	\$6,102.67	\$1.70	\$4,104.62	.....
2. Cornish	514,827.00	12,095.42	1.94	.....	\$202.25
3. Croydon	213,993.00	5,838.89	2.03	.....	.....
4. Charlestown ..	827,753.00	10,845.02	1.40	500.00	1,927.00
5. Claremont	2,397,324.00	34,146.73	1.42	112,752.00	2,757.91
6. Goshen	174,224.00	5,275.55	2.94	2,710.25	1,956.11
7. Grantham	154,389.00	3,332.08	1.97	9,361.86	1,100.00
8. Langdon	264,216.00	3,178.10	2.25	.....	191.37
9. Lempster	228,282.00	3,675.34	1.61	3,582.34	1,401.06
10. Newport	1,346,054.00	21,276.00	1.58	115,862.79	1,229.86
11. Plainfield	558,964.00	8,160.88	1.46	17,898.66	7,462.10
12. Springfield ...	170,012.00	7,146.89	4.18	21,273.74	4,502.65
13. Sunapee	274,458.00	6,857.42	2.92	13,015.70	1,025.50
14. Unity	263,482.00	4,220.47	1.60	.....	.....
15. Washington ...	331,096.00	8,061.63	2.12	2,090.82	1,624.28
Aggregate...	\$8,075,440.00	\$140,213.09	\$1.73	\$303,152.78	\$25,380.09

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of public works.	Precinct debts.	Purpose for which debt was incurred.
1.	\$1,293.82	b \$2,281.94	.....	.....	War.
2.	1,698.94	.....	.....	.....
3. \$65.08	.....	a 404.60	.....	.....	{ Highways and paupers.
4.	949.66	.....	.....	.....
5.	732.90	a 57.17	.....	\$1,000.00	
6. 18,870.91	.....	b 1,267.74	.....	.....	Aid to railroad.
7. 14,297.17	.....	b 1,376.04	.....	.....	New town hall.
8. 15,171.57	.....	b 226.60	.....	.....	Aid to railroad.
9. 270,591.37	.....	a 20,973.28	\$271,407.66	.....	{ Water-works, sew- ers, and aid to R.R.
10.	581.24	.....	.....	.....
11. 14,685.95	.....	b 2,380.83	.....	.....
12. 164.36	.....	b 800.00	.....	.....	Highways.
13.	1,852.68	.....	.....	.....
14.	2,073.89	.....	.....	.....
15.	567.95	.....	.....	.....
16.	1,616.86	.....	.....	.....
17.	980.42	.....	.....	.....
18.	896.28	.....	.....	.....
19. 6,111.11	.....	b 362.03	.....	.....	War.
20. 431.17	.....	a 431.17	.....	.....
21. 7,412.89	.....	a 6,665.47	.....	.....	Town house.
22.	687.72	.....	.....	.....
23.	360.64	.....	.....	.....
\$348,534.48	\$13,560.10	a \$28,531.69	\$271,407.66	\$1,000.00	
		b 8,695.18			
		* \$19,836.51			

* Net increase.

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Precinct debts.	Purpose for which debt was incurred.
1. \$4,104.62	.....	b \$1,229.65	.....	War.
2.	\$202.25	.....	.....
3. ....	.....	.....	.....
4.	1,427.00	b 2,695.84	.....
5. 109,994.09	.....	b 1,130.14	.....	War and aid to railroad.
6. 754.14	.....	b 1,687.64	.....
7. 8,261.86	.....	b 600.89	.....
8.	191.37	.....	.....
9. 2,181.28	.....	b 542.06	.....
10. 114,632.93	.....	a 3,974.40	.....	{ Railroad gratuity, court house, and town hall.
11. 10,436.56	.....	b 1,856.73	.....	War.
12. 16,771.09	.....	b 1,091.34	.....	War.
13. 11,990.20	.....	b 519.84	.....
14. ....	.....	.....	.....
15. 466.54	.....	a 1,342.54	\$297.72	Town history.
\$279,593.31	\$1,820.62	b \$11,354.13	\$297.72	
		a 5,316.94		
		* \$6,037.19		

* Net decrease.

GRAFTON

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Alexandria....	\$248,265.00	\$5,789.61	\$1.80	.....	\$956.34
2. Ashland	410,342.00	5,588.14	1.38	.....	710.05
3. Bath	580,012.00	12,197.83	2.10	\$21,473.00	7,184.16
4. Benton.....	105,753.00	3,974.87	3.76	7,868.74	3,268.67
5. Bethlehem	665,016.00	9,975.24	1.50	17,550.00	1,629.21
6. Bridgewater ..	124,472.00	3,174.03	2.55	5,075.31	1,424.20
7. Bristol	575,136.00	9,125.88	1.65	3,160.00	1,373.61
8. Campton	350,788.00	9,858.19	2.81	24,425.28	3,219.31
9. Canaan	510,589.00	10,103.73	1.98	8,760.15	5,782.02
10. Dorchester	117,430.00	4,116.65	3.50	20,463.77	3,938.86
11. Easton	114,775.00	2,169.24	1.89	1,608.37	1,465.27
12. Ellsworth.....	37,336.00	1,759.68	4.71	3,750.00	500.00
13. Enfield	636,630.00	7,358.99	1.15	.....	2,468.28
14. Franconia	361,345.00	5,841.33	1.62	5,732.01	975.65
15. Grafton	326,408.00	4,667.56	1.43	.....	1,972.70
16. Groton	140,134.00	4,342.50	3.10	5,819.62	1,655.62
17. Hanover	1,049,166.00	8,509.22	.83	.....	10,379.61
18. Haverhill	1,167,201.00	14,127.14	1.20	15,106.88	18,393.61
19. Hebron	100,156.00	2,193.56	2.19	.....	632.35
20. Holderness	226,022.00	6,464.02	2.86	3,248.00	1,780.29
21. Landaff	220,666.00	3,199.71	1.45	.....	1,080.51
22. Lebanon	2,102,014.00	24,587.65	.94	7,383.34	3,651.39
23. Lincoln	42,261.00	565.00	1.35	.....	95.00
24. Lisbon	976,710.00	12,208.87	1.25	15,700.00	4,373.56
25. Littleton.....	1,466,822.00	29,336.00	2.00	10,381.90	5,111.38
26. Livermore	52,560.00	728.28	1.38	.....	.....
27. Lyman	192,788.00	2,756.97	1.43	1,912.89	2,019.49
28. Lyme	511,034.00	8,190.05	1.60	1,235.72	1,369.29
29. Monroe	269,832.00	2,510.53	.93	.....	.....
30. Orange	77,218.00	1,834.75	2.36	1,396.29	1,369.08
31. Orford	469,389.00	6,162.32	1.31	7,728.94	5,872.26
32. Piermont	364,412.00	8,303.70	2.20	12,365.61	1,125.04
33. Plymouth.....	709,438.00	12,578.11	1.77	617.00	2,779.30
34. Rumney	349,204.00	4,330.12	1.24	.....	1,159.15
35. Thornton	179,914.00	6,725.91	3.75	22,934.15	4,918.06
36. Warren	263,311.00	3,055.99	1.16	.....	2,803.47
37. Waterville	30,341.00	562.00	1.86	.....	500.00
38. Wentworth	233,114.00	5,827.00	2.50	11,918.32	3,938.18
39. Woodstock	99,676.00	2,809.64	2.93	12,737.48	1,894.46
Aggregate ..	\$16,457,680.00	\$267,610.01	\$1.62	\$250,352.77	\$113,769.43

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Precinct debts.	Purpose for which debt was incurred.
1.	\$956.34	.....	.....
2.	710.05	.....	.....
3. \$14,288.84	.....	b \$1,222.45	.....
4. 4,600.07	.....	b 1,991.19	.....	War.
5. 15,920.79	.....	b 1,211.74	.....	War.
6. 3,651.11	.....	b 1,057.01	.....	War.
7. 1,786.39	.....	b 1,160.32	\$800.00	War.
8. 21,205.97	.....	b 434.31	.....
9. 2,978.13	.....	b 3,106.91	.....	War.
10. 16,524.91	.....	b 781.77	.....	War.
11. 143.10	.....	b 606.30	.....
12. 3,250.00	.....	b 477.00	.....	War.
13.	2,468.28	.....	.....
14. 4,756.36	.....	a 1,652.60	.....	Highways.
15.	1,972.70	.....	.....
16. 4,164.00	.....	b 1,016.76	.....	War.
17.	10,379.61	.....	.....
18.	3,286.73	.....	.....
19.	632.35	.....	.....
20. 1,467.71	.....	a 320.88	300.00	
21.	1,080.51	.....	.....
22. 3,731.95	.....	b 2,283.94	8,000.00	War.
23.	95.00	.....	.....
24. 11,326.44	.....	b 1,177.59	.....
25. 5,270.52	.....	b 2,565.28	.....	War.
26. ....	.....	.....	.....
27.	106.60	b 1,379.76	.....
28.	133.57	.....	.....
29. ....	.....	.....	.....
30. 27.21	.....	a 27.21	.....	Highways.
31. 1,856.68	.....	.....	.....
32. 11,240.57	.....	b 2,205.94	.....
33.	2,162.30	b 371.81	2,520.04	
34.	1,159.15	.....	.....
35. 18,016.09	.....	b 1,541.80	.....	War.
36.	2,803.47	.....	.....
37.	500.00	.....	.....
38. 7,980.14	.....	b 1,671.65	.....	War.
39. 10,843.02	.....	b 38.35	.....	Bridges.
\$165,030.00	\$28,446.66	b \$26,301.88	\$11,620.04	
		a 2,000.69		
		* \$24,301.19		

* Net decrease.

COÖS

TOWNS.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debt.	Assets.
1. Berlin.....	\$493,005.00	\$13,472.40	\$1.27	\$26,988.04	\$5,041.13
2. Carroll.....	227,816.00	5,305.09	1.86	2,463.43	2,180.55
3. Clarksville....	113,480.00	2,372.42	2.09	736.00	.....
4. Colebrook	732,230.00	10,510.26	2.75	1,550.00	290.87
5. Columbia	269,960.00	4,544.38	1.75	4,618.92	1,644.43
6. Dalton	164,295.00	4,782.41	3.53	28,400.00	5,910.00
7. Dummer.....	114,420.00	4,162.41	3.64	5,789.49	2,497.82
8. Errol.....	71,936.00	2,160.91	2.30	4,922.77	82.82
9. Gorham.....	433,458.00	8,980.80	2.07	1,650.00	1,289.42
10. Jefferson.....	288,972.00	7,072.78	2.75	9,469.48	4,571.01
11. Lancaster.....	1,159,838.00	22,667.00	1.62	19,190.66	5,021.67
12. Milan.....	246,342.00	6,803.42	2.70	5,619.74	3,016.28
13. Northumb'rld	381,554.00	6,438.89	2.31	3,406.01	1,892.38
14. Pittsburgh....	370,312.00	5,259.24	1.54	600.00	.....
15. Randolph.....	76,272.00	2,486.44	3.25	2,767.25	996.47
16. Shelburne....	116,390.00	1,718.79	1.50	.....	600.00
17. Stark.....	248,006.00	6,912.22	2.76	4,172.39	2,959.77
18. Stratford.....	335,648.00	5,536.90	1.18	180.00	.....
19. Stewartstown.	353,374.00	7,700.95	2.18	5,287.97	666.60
20. Whitefield	578,365.00	11,122.63	1.92	10,945.31	6,091.73
Aggregate..	\$6,775,673.00	\$140,030.34	\$2.06	\$138,757.46	\$44,752.95

RECAPITULATION

COUNTIES.	Assessed valuation.	Taxes assessed for all purposes.	Tax on \$100.	Total debts.
1. Rockingham	\$23,080,241.00	\$358,144.75	\$1.55	\$741,024.82
2. Strafford c	11,147,264.00	163,776.93	1.47	141,170.37
3. Belknap	7,532,165.00	158,130.15	2.09	88,014.37
4. Carroll.....	5,816,404.00	154,319.32	2.65	228,885.53
5. Merrimack	24,381,931.00	378,530.95	1.55	760,713.27
6. Hillsborough	46,679,934.00	717,936.24	1.53	1,718,456.79
7. Cheshire	17,160,279.00	232,621.74	1.35	454,838.57
8. Sullivan.....	8,075,440.00	140,213.09	1.78	303,152.78
9. Grafton.....	16,457,680.00	267,610.01	1.62	250,352.77
10. Coös	6,775,673.00	140,030.34	2.06	138,757.46
Aggregate	\$167,107,011.00	\$2,711,313.52	\$1.62	\$4,825,366.74

c No return received from Dover. Valuation last year, \$8,145,348.00.

COUNTY.

Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Precinct debts.	Purpose for which debt was incurred.
1. \$21,946.91	a \$5,310.52	.....	Highways.
2. 282.88	b 99.54	.....
3. 736.00	a 541.00	.....	War.
4. 1,259.13	a 250.00	\$1,259.13	
5. 2,974.49	b 1,049.35	.....	War.
6. 22,490.00	b 724.00	.....	War.
7. 3,291.67	a 213.72	700.00	Highways.
8. 4,839.95	b 170.47	.....
9. 360.58	b 900.67	1,251.08	
10. 4,898.47	b 1,360.98	.....
11. 14,168.99	b 3,267.70	.....
12. 2,603.46	b 1,207.47	.....
13. 1,513.63	b 842.42	.....	War.
14. 600.00	b 3,000.00	600.00	
15. 1,770.78	a 198.54	.....
16.	\$600.00	.....	.....
17. 1,212.62	b 790.61	.....	War.
18. 180.00	a 220.00	250.00	
19. 4,621.37	a 28.49	.....
20. 4,853.58	b 2,572.07	.....
\$94,604.51	\$600.00	b \$15,985.28	\$4,060.21	
		a 6,762.27		
		* \$9,223.01		

* Net decrease.

BY COUNTIES.

Assets.	Net debt.	Surplus.	Increase (a) or decrease (b) during year.	Cost of pub- lic works.	Precinct debts.
1. \$441,170.80	\$304,585.54	\$4,731.52	a \$10,071.60	\$26,248.97	\$1,120.00
2. 46,881.74	106,923.08	12,634.45	b 11,504.74	20,000.00	10,519.61
3. 47,213.63	44,248.48	3,447.74	b 18,951.57	800.00	18,512.42
4. 36,545.76	194,094.44	1,754.67	b 17,924.76	.....	.....
5. 137,825.86	642,387.37	19,499.96	b 46,383.65	577,892.36	434,217.00
6. 381,362.91	1,359,726.19	22,632.31	a 13,872.24	1,176,689.31	2,901.55
7. 119,864.19	348,534.48	13,560.10	a 19,836.51	271,407.66	1,000.00
8. 25,380.09	279,593.31	1,820.62	b 6,037.19	.....	297.72
9. 113,769.43	165,030.00	28,446.66	b 24,301.19	.....	11,620.04
10. 44,752.95	94,604.51	600.00	b 9,223.01	.....	4,060.21
\$1,394,767.36	\$3,539,727.40	\$109,128.03	b \$134,326.11	\$2,073,038.30	\$484,248.55
			a 43,780.45		
			* \$90,545.76		

* Net decrease.

STATEMENT OF THE FINANCIAL CONDITION

Of the several counties on the 1st day of May, 1886, compiled in accordance with the provisions of an act of the Legislature approved August 13, 1885.

COUNTIES.	Total debt.	Cash on hand.	Net debt.	Valuation county buildings and farm.	Valuation stock and personal property.	Reduction of debt past year.	Purpose for which debt was incurred.
Rockingham	\$41,500.00	\$35,413.23	\$6,086.77	\$50,000.00	\$18,210.27	\$7,931.87	County farm buildings.
Strafford.....	72,500.00	7,235.50	65,264.50	50,000.00	15,065.06	<i>a</i> 10,917.73	Alms-house.
Belknap.....	22,166.45	3,896.14	18,270.31	28,000.00	8,022.37	<i>b</i> 2,888.07	Alms-house, jail, and sewerage.
Carroll.....	82,302.21	2,230.03	80,072.18	20,000.00	5,177.53		General expenses.
Merrimack.....	76,000.00	10,138.60	65,861.40	30,000.00	13,357.61	4,081.67	County buildings.
Hillsborough.....	92,781.24	7,824.70	84,956.54	27,675.00	21,289.38	1,192.40	County farm and buildings.
Cheshire.....	40,500.00	450.53	40,049.47	111,000.00	7,500.00	<i>a</i> 680.36	Jail and house of correction.
Sullivan.....	.....	2,809.69	.....	27,958.23	7,373.40	.....
Grafton.....	41,346.41	21,724.95	19,621.46	40,000.00	10,783.20	<i>a</i> 3,317.59	{ Pauper account and county buildings.
Cooks.....	17,657.68	8,150.67	9,507.01	20,000.00	8,279.84	2,027.66	{ Pauper account and county buildings.
Aggregate.....	\$486,753.99	\$99,874.04	\$386,889.64	\$404,633.23	\$115,058.66	<i>c</i> \$3,205.99	

a Increase. *b* No statement filed last year. *c* Net decrease.

FORTY-SECOND ANNUAL REPORT

OF THE

BANK COMMISSIONERS

OF THE

STATE OF NEW HAMPSHIRE,

TO

HIS EXCELLENCY THE GOVERNOR,

JUNE, 1887.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1887.

STATE OF NEW HAMPSHIRE.

OFFICE OF BANK COMMISSIONERS,
CONCORD, N. H., May 1, 1887.

To His Excellency the Governor :

SIR, — We herewith respectfully submit the forty-second annual report of this Commission, showing the condition of the Salmon Falls State Bank, the New Hampshire Trust Company, and sixty-six savings banks, together with an appendix showing the condition of all the savings banks in the State, as of March 31, 1887. As the examinations extend through the year it would be impossible to give a comparative statement. On this account the commissioners last year called for a statement March 31st, and as all of the banks have complied with a similar request this year, it enables us to submit the following tables:

TABLE NO. 1.

Comparative statement showing condition of the several savings banks in the State at close of business, March 31, 1886 and 1887.

<i>Liabilities.</i>	1886.	1887.
Due depositors.....	\$47,231,918.99	\$50,822,762.71
Surplus.....	1,845,678.94	2,100,135.68
Guaranty fund.....	2,258,742.86	2,504,544.59
Miscellaneous indebtedness....	269,655.79	16,693.07
	<u>\$51,605,996.58</u>	<u>\$55,444,136.05</u>

Resources.

	Value on Books, 1886.	Value on Books, 1887.
Loans on real estate.....	\$22,001,092.51	\$25,320,569.60
Loans on personal security.....	3,949,877.91	3,757,424.61
Loans on collateral security.....	3,278,602.30	3,625,434.76
United States and state bonds.....	565,450.00	559,450.00
County, city, town, and district bonds.....	7,457,528.87	6,966,647.14
Bank stock.....	1,833,977.57	1,906,815.58
Railroad stock.....	1,427,108.98	1,580,480.53
Railroad bonds.....	6,544,764.28	6,427,104.30
Manufacturing stocks.....	174,500.00	253,205.00
Other investments.....	2,608,747.16	3,454,676.28
Real estate.....	237,649.53	231,777.93
Real estate acquired or held by foreclosure.....	500,154.81	465,223.08
Bank fixtures.....	15,599.81	11,723.75
Balance on deposit in national banks.....	835,630.23	663,062.28
Cash.....	175,312.62	220,541.21
	<u>\$51,605,996.58</u>	<u>\$55,444,136.05</u>

We think it would be wise if the law were changed and have the examinations and reports made by the trustees of the several savings banks all made at some stated time ; then we would have uniformity as to these reports. As it is now, they are made up in many cases to suit the convenience of the trustees and treasurers, and some will not be returned until we have called the treasurer's attention to the law several times. In making our examinations the last year, we have taken from the cash-book the amounts received and paid out on account of deposits. We find the amount received to be \$10,271,170.12, paid out \$8,743,030.68.

TABLE No. 2.

Showing a condensed statement of the savings banks at time of examinations, 1886 and 1887.

<i>Liabilities.</i>	1886.	1887.
Due depositors.....	\$46,631,913.72	\$50,292,666.85
Guaranty fund.....	2,149,558.03	2,443,316.63
Surplus.....	1,671,322.34	1,774,573.13
Miscellaneous indebtedness.....	470,569.12	14,222.73
	<u>\$50,923,363.21</u>	<u>\$54,524,779.34</u>

Resources.

	Value on Books, 1886.	Value on Books, 1887.
Loans secured by Western farm mortgages.....	\$12,113,500.75	\$14,276,561.99
Loans secured by Western city mortgages.....	3,362,423.61	4,229,589.75
Loans on real estate.....	6,061,111.75	5,910,528.92
Loans on personal security.....	3,369,501.89	3,287,480.17
Loans on personal security (Western).....	422,159.77	341,607.05
Loans on collateral security.....	3,066,947.14	2,988,836.13
Loans on collateral security (Western).....	224,491.00	300,636.64
United States and state bonds.....	573,895.14	543,350.00
County, city, town, and district bonds.....	7,116,133.10	7,011,151.33
Railroad bonds.....	6,457,481.31	6,578,727.00
Railroad stock.....	1,397,850.25	1,548,710.64
Bank stock.....	1,793,374.74	1,827,621.66
Manufacturing stocks.....	156,900.00	169,650.00
Miscellaneous bonds and stocks.....	165,094.60	3,594,928.59
With investing agents.....	84,183.38	100,791.94
Real estate.....	186,420.60	222,079.85
Real estate acquired or held by foreclosure.....	563,513.60	456,784.55
Bank fixtures.....	14,272.84	12,548.02
Cash.....	958,351.61	863,311.32
Miscellaneous investments.....	2,835,756.13	259,883.79
	<u>\$50,923,363.21</u>	<u>\$54,524,779.34</u>

The above table shows the following :

Deposits show an increase of	\$3,670,206.33
Guaranty fund shows an increase of	293,758.60
Surplus shows an increase of	122,635.31
Western farm and city loans show an increase of	3,030,227.38

Railroad bonds show an increase of	\$121,243.69
Railroad stocks show an increase of	150,860.39
Bank stock shows an increase of	34,246.92
Manufacturing stocks show an increase of	12,750.00
Miscellaneous bonds and stocks show an increase of .	759,172.46
Miscellaneous investments show an increase of . .	94,789.19
Amounts with investing agents show an increase of .	16,608.56
Real estate purchased shows an increase of . . .	35,659.25
Loans secured by local real estate have decreased .	150,582.83
Loans on personal and collateral security have decreased	160,132.73
Loans on personal and collateral security (Western) have decreased	4,407.08
United States and state bonds show a decrease of .	50,545.14
County, city, town, and district bonds show a decrease of	99,981.77
Real estate acquired or held by foreclosure shows a decrease of	106,719.05
Bank fixtures show a decrease of	1,724.86
Cash on hand has decreased	95,040.29

RECORD-BOOK.

It is our opinion that there should be a law passed compelling savings banks in the State to keep a record-book for the committee of investments, and every note should be entered upon such book, and at the meeting of the investment committee all notes should be approved, and said committee certifying their approval by signing such record at the time of approval. This would put the responsibility of making the loans upon the committee of investments chosen by the trustees rather than upon the treasurer, and in this way it is our belief that in some cases more care would be exercised.

It would be wise if the Legislature pass a law that every payment of principal and interest should be indorsed on the note, giving date and amount. Where this is not done, there is a possibility of the Commissioners reckoning a note for more than its true value. Certainly there cannot be any objection in making these indorsements upon the note.

BOOK-KEEPING.

We are of the opinion that savings-bank treasurers of this State should be obliged to keep their books in such a manner as to be able at any time to make out a trial-balance, so the trustees or Bank

Commissioners could ascertain the exact condition of the bank. We claim the banks should keep a complete record of all notes, stocks, and bonds, from the time of their purchase. If such a record were kept, the income account could be verified as accurately as the deposit account, and, in our opinion, it is as essential.

We are pleased to be able to report that the large banks see the importance of having a thorough system of book-keeping. There are some banks that are so thorough in this that the trustees or Commissioners can verify their income account to a certainty.

We do not desire to recommend a radical or universal change, but we do feel that the interest of depositors in all banks is of sufficient importance to have the books of the bank so kept that the true condition can be arrived at at any time, and every treasurer should be obliged to balance his cash account and make a record of the same at least once a week, and a trial-balance as often as once a month.

TRUSTEES.

We have in our savings banks as trustees some of the strongest and ablest financial men in our State. When it is taken into consideration that these men devote their valuable time to the best interests of the respective banks without any compensation, it is, to say the least, very magnanimous, and indeed commendable, and the depositors are to be congratulated that men of this character are identified with some of our banks. In some localities the bank treasurers and depositors are less fortunate, as some of the board of trustees and even the committee of investments do not give the treasurer the benefit of their knowledge as to loans offered for discount. Even the committee of examinations neglect their very important duty, and will sign reports without making the examination that the law very wisely requires.

GEORGE E. GAGE,
CHARLES E. COOPER,
Bank Commissioners.

STATE BANK.

SALMON FALLS STATE BANK.—SALMON FALLS.

ORANGE S. BROWN, *President.* WILLIAM H. MORTON, *Cashier.*

STATEMENT.

Liabilities.

Capital stock.....	\$50,000.00		\$50,000.00
Deposits.....	35,342.37		35,342.37
Surplus.....	15,216.61		15,216.61
Dividends unpaid.....	950.00		950.00
Bills unredeemed.....	1,130.00		1,130.00
Due Eliot National Bank.....	3,152.65		3,152.65
Premium on stocks and bonds, im- paired	\$105,791.63 1,500.00		\$105,791.63
	\$104,291.63		

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$53,400.50	\$53,400.50	\$53,400.50
Loans secured by local real estate.	3,207.40	3,207.40	3,207.40
Loans on personal security.....	6,665.00	6,665.00	6,665.00
Loans on personal security, West'n	18,609.00	18,609.00	18,609.00
Loans on collateral security.....	5,147.16	5,147.16	5,147.16
County, city, town, and district bonds (Bay City, Mich.).....	5,900.00	5,000.00	5,000.00
Railroad bonds (Des Moines, Osceo- la & Southern).....	2,500.00	5,000.00	2,500.00
Bank stock (Denver Exchange City Bank, Col.).....		6,000.00	2,400.00
Real estate purchased for the bank:			
Bank Building.....	1,854.25	1,854.25	1,854.25
Cash on hand.....	7,008.32	7,008.32	7,008.32
	\$104,291.63	\$111,891.63	\$105,791.63

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	.	\$7,259.06
Deduct expenses for 1886	.	.	.	\$380.00	
Deduct items charged off	.	.	.	3,147.00	
				<hr/>	3,527.00
Net profits to be accounted for	.	.	.	.	\$3,527.00
Dividend of 5 per cent, March 1, 1886	.	.	.	\$2,500.00	
Dividend of 5 per cent, Sept. 1, 1886	.	.	.	2,500.00	
Loss	.	.	.	.	1,267.94
				<hr/>	<hr/>
Accounted for	.	.	.	.	\$5,000.00 \$5,000.00
Total surplus profits Jan. 1, 1886	.	.	.	.	\$17,268.06
Total surplus profits Jan. 1, 1887	.	.	.	.	16,000.12
				<hr/>	<hr/>
Decrease for the year 1886	.	.	.	.	\$1,267.94
Surplus profits — Jan. 1, 1883, \$16,353.85 ; Jan. 1, 1884, \$18,531.56 ; Jan. 1, 1885, \$18,892.12 ; Jan. 1, 1886, \$17,268.06 ; Jan. 1, 1887, \$16,000.12.					

Incorporated 1851. Charter perpetual.

Examination completed Oct. 12, 1886, by George E. Gage.

Directors — O. S. Brown, F. Plumer, C. F. Wood, E. A. Stevens, J. Q. A. Wentworth, J. H. Roberts.

Cashier's bond \$20,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Oct. 9, 1884. Sureties of bond are able to respond. Bond deposited with president of the bank for safe-keeping.

Annual compensation of cashier, \$200.

Officers have taken their official oath.

Indebtedness of directors as principal, \$300 ; as surety, \$1,175, by unanimous consent of directors.

Loans and investments are made by cashier on approval of directors.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Total amount of loans, \$87,029.06.

Total amount of stocks and bonds, \$9,400.

Largest amount loaned to any individual, corporation, or company, \$2,400.

Amount of assets with interest unpaid for over six months, \$2,000.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$16,873.81.

Total amount loaned or invested in New England, \$16,873.81.

Total amount loaned or invested out of New England, \$81,909.50.

Total amount loaned or invested drawing 6 per cent interest,
\$16,327.56.

Total amount loaned or invested drawing 7 per cent interest,
\$45,309.

Total amount loaned or invested drawing 8 per cent interest,
\$27,492.50.

Total amount loaned or invested drawing 9 per cent interest,
\$1,200.

Amount invested from which no income has been received during
the year, \$9,400.

Total expense of institution for the twelve months ending Oct. 1,
1886, \$316.32.

Amount charged off as losses since last examination, \$3,000.

Amount of other taxes, \$63.08.

SAVINGS BANKS.

ALTON FIVE CENTS SAVINGS BANK. — ALTON.

CHAS. E. WALKER, *President.*

AMOS L. ROLLINS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$61,472.55		\$61,472.55
Guaranty fund	1,620.52		1,620.52
Surplus	1,609.76		1,609.76
Premium on stocks and bonds, im- paired	\$64,702.83 39.58		
	\$64,663.25		\$64,702.83

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$500.00	\$500.00	\$500.00
Loans secured by local real estate.,	38,238.19	38,238.19	38,238.19
Loans on personal security.....	9,764.47	9,764.47	9,764.47
Loans on collateral security.....	1,127.69	1,127.69	1,127.69
State bonds.....	6,549.00	5,900.00	5,900.00
Railroad bonds.....	3,740.00	3,200.00	3,265.58
Railroad stock.....	1,872.00	3,200.00	3,035.00
Real estate acquired or held by foreclosure.....	\$05.00	\$05.00	\$05.00
Bank fixtures	407.55	407.55	407.55
Cash on hand.....	1,659.35	1,659.35	1,659.35
	\$64,663.25	\$64,802.25	\$64,702.83

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$3,641.51
Deduct expenses for 1886	\$345.46
Deduct state tax for 1886	594.01
	<hr/>
	939.47
	<hr/>
Net profits to be accounted for	\$2,702.04
Dividend of 4 per cent, July, 1886	\$2,453.29
Carried to guaranty fund	240.00
Balance of profits for 1886	8.75
Net profits (as above) accounted for	<hr/>
	\$2,702.04
Guaranty fund Jan. 1, 1886	\$1,380.52
Other undivided profits Jan. 1, 1886	658.94
Total surplus profits Jan. 1, 1886	<hr/>
	\$2,039.46
Guaranty fund Jan. 1, 1887	\$1,620.52
Other undivided profits Jan. 1, 1887	667.69
Total surplus profits Jan. 1, 1887	<hr/>
	2,288.21
	<hr/>
Increase for the year 1886	\$248.75
Surplus profits — Jan. 1, 1884, \$1,009.60 ; Jan. 1, 1885, \$1,- 391.39 ; Jan. 1, 1886, \$2,039.46 ; Jan. 1, 1887, \$2,288.21.	

Incorporated 1869. Charter perpetual.

Examination completed Oct. 29, 1886, by George E. Gage.

Vice-President — Leonard S. Nute.

Trustees — Henry Hurd, Amos L. Rollins, J. W. Currier, Leonard S. Nute, Jeremiah Jones, Charles E. Walker, John P. Clough, O. J. M. Gilman, Charles H. Hurd, Charles A. Hatch, Joshua W. Ayers, Andrew Varney, S. C. Wentworth, Albert R. Page, Alonzo S. French.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, November, 1885. Sureties of bond are able to respond. Bond deposited with president of bank for safe-keeping.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$80 ; as surety, \$150, by unanimous consent of trustees.

Loans and investments are made by committee of the trustees.

Reports are made as required by law.

Number of depositors, 252 ; increase since last examination by Bank Commissioners, 16.

Amount of deposits, \$61,472.55 ; increase since last examination, \$2,641.51.

Number of single loans of \$1,000 or less to separate parties in the State, 256.

Total amount of loans, \$49,630.35.

Total amount of stocks and bonds, \$12,200.58.

Largest amount loaned to any individual, corporation, or company, \$3,400.

Amount of assets with interest unpaid for over six months, \$11,411.91.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$56,242.96.

Total amount loaned or invested in New England, \$61,467.23.

Total amount loaned or invested out of New England, \$1,576.25.

Total amount loaned or invested drawing 6 per cent interest, \$55,835.35.

Total amount loaned or invested drawing 7 per cent interest, \$3,765.58.

Amount invested from which no income has been received during the year, \$3,035.

Dividends for the year ending Dec. 31, 1886 : July, 1886, 4 per cent, \$2,453.29.

Total expense of institution for the twelve months ending Oct. 29, 1886, \$344.57.

Amount of taxes, \$9.12.

Amount of deposits received since last examination, \$8,670.71.

Dividends declared since last examination, \$2,453.29.

Amount paid on account of deposits since last examination, \$8,482.49.

SCHEDULE OF BONDS AND STOCKS OF THE ALTON SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
STATE.			
New Hampshire, 6s.....	\$6,549.00	\$5,900.00	\$5,900.00
RAILROAD.			
New York and New England, 7s. ...	\$2,540.00	\$2,000.00	\$2,189.33
Florida Southern, 6s.....	1,200.00	1,200.00	1,076.25
	\$3,740.00	\$3,200.00	\$3,265.58
STOCKS.			
Central Massachusetts, preferred...	\$1,872.00	\$3,200.00	\$3,035.00

AMOSKEAG SAVINGS BANK. — MANCHESTER.

MOODY CURRIER, *President.*HENRY CHANDLER, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$3,356,338.14		\$3,356,338.14
Guaranty fund.....	175,000.00		175,000.00
Surplus.	131,699.08		131,699.08
Premium on stocks and bonds.....	386,037.00		.....
	<u>\$4,049,074.22</u>		<u>\$3,663,037.22</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$865,357.57	\$865,357.57	\$865,357.57
Loans secured by Western city mortgages.....	107,000.00	107,000.00	107,000.00
Loans secured by local real estate.	484,766.45	484,766.45	484,766.45
Loans on personal security.....	501,374.82	501,374.82	501,374.82
Loans on collateral security.....	271,449.02	271,449.02	271,449.02
Loans on collateral security (Western).....	74,783.34	74,783.34	74,783.34
U. S. bonds	193,000.00	150,000.00	150,000.00
County, city, town, and district bonds.....	149,600.00	132,200.00	132,075.00
Railroad bonds	308,720.00	291,000.00	270,720.00
Railroad stock.....	394,380.00	271,100.00	257,220.00
Bank stock.....	295,912.00	242,400.00	232,400.00
Manufacturing stock.....	140,950.00	95,000.00	95,000.00
Miscellaneous bonds.....	58,760.00	56,500.00	56,220.00
Miscellaneous stocks.....	114,450.00	96,100.00	76,100.00
Balance on deposit in Amoskeag National Bank	63,888.30	63,888.30	63,888.30
In hands of investing agents.....	22,880.72	22,880.72	22,880.72
Cash on hand.....	1,802.00	1,802.00	1,802.00
	<u>\$4,049,074.22</u>	<u>\$3,727,602.22</u>	<u>\$3,663,037.22</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$213,153.47
Deduct expenses for 1886	\$7,846.41
Deduct state tax for 1886	31,382.92
Deduct premiums charged off	18,376.63
	<u>57,605.96</u>
Net profits to be accounted for	\$155,547.51

Dividend of 5 per cent, July 1, 1886 .	\$149,213.15	
Balance of profits for 1886 .	6,334.36	
Net profits (as above) accounted for .	—————	\$155,547.51
Guaranty fund Jan. 1, 1886 .	\$165,000.00	
Other undivided profits Jan. 1, 1886 .	127,519.50	
Total surplus profits Jan. 1, 1886 .	—————	\$292,519.50
Guaranty fund Jan. 1, 1887 .	\$175,000.00	
Other undivided profits Jan. 1, 1887 .	123,853.86	
Total surplus profits Jan. 1, 1887 .	—————	298,853.86
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Increase for the year 1886 .	.	\$6,334.36

Surplus profits — Jan. 1, 1883, \$240,792.66 ; Jan. 1, 1884, \$278,146.53 ; Jan. 1, 1885, \$286,812.38 ; Jan. 1, 1886, \$292,519.50 ; Jan. 1, 1887, \$298,853.86.

Incorporated 1852. Charter perpetual.

Examination completed Feb. 16, 1887, by George E. Gage and Charles E. Cooper.

Trustees — Moody Currier, Henry C. Merrill, James E. Bennett, Lucien B. Clough, George W. Riddle, Henry Chandler, Leonard French, Otis Barton.

Treasurer's bond \$200,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Dec. 8, 1884. Sureties of bond are able to respond. Bond deposited with L. B. Clough for safe-keeping.

Clerks — J. E. Currier, H. L. Davis.

Annual compensation of treasurer, \$6,500.

Annual compensation of clerks paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$23,250, by unanimous consent of trustees.

Loans and investments are made by board consisting of trustees and treasurer.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 8,651 ; increase since last examination by Bank Commissioners, 317.

Amount of deposits, \$3,356,338.14 ; increase since last examination, \$209,289.77.

Number of single loans of \$1,000 or less to separate parties in the State, 136.

Total amount of loans, \$2,304,731.20.

Total amount of stocks and bonds, \$1,269,735.

Largest amount loaned to any individual, corporation, or company, \$64,300.

Amount of assets with interest unpaid for over six months, \$33,362.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$1,226,236.23.

Total amount loaned or invested in New England, \$1,519,387.91.

Total amount loaned or invested out of New England, \$2,055,077.79.

Total amount loaned or invested drawing 2 per cent interest, \$20,000.

Total amount loaned or invested drawing 4 per cent interest, \$203,000.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest, \$28,200.

Total amount loaned or invested drawing 5 per cent interest, \$226,893.91.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$66,381.25.

Total amount loaned or invested drawing 6 per cent interest, \$1,465,115.13.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$18,950.

Total amount loaned or invested drawing 7 per cent interest, \$1,943,163.06.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$50,000.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$6,100.

Total amount loaned or invested drawing 8 per cent interest, \$437,440.84.

Total amount loaned or invested drawing 9 per cent interest, \$800.

Total amount loaned or invested drawing 10 per cent interest, \$148,687.01.

Total amount loaned or invested drawing 11 per cent interest, \$10,000.

Amount invested from which no income has been received during the year, \$14,300.

Dividends for the year ending Dec. 31, 1886: 5 per cent July 1, 1886, \$149,213.15.

Total expense of institution for the twelve months ending Feb. 16, 1887, \$7,846.41.

Nothing charged off as losses since last examination.

Amount of deposits received since last examination, \$745,126.99.

Amount of dividends declared since last examination, \$149,213.15.

Amount paid on account of deposits since last examination, \$685,050.37.

SCHEDULE OF BONDS OF THE AMOSKEAG SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
U. S. bonds, 4s	\$193,000.00	\$150,000.00	\$150,000.00
RAILROAD.			
Boston, Concord & Montreal, 6s....	\$55,000.00	\$50,000.00	\$50,000.00
Chicago, Burlington & Quincy, 4s..	32,010.00	33,000.00	28,920.00
Canastota Northern, 6s.....	15,000.00	15,000.00	15,000.00
Chicago, Burlington & Quincy, 7s...	6,500.00	5,000.00	5,000.00
New York & Manhattan Beach, 7s..	10,000.00	10,000.00	7,600.00
Michigan Central, 8s.....	54,000.00	50,000.00	50,000.00
Union Pacific, 6s.....	4,240.00	4,000.00	4,000.00
Chicago & Western Michigan, 5s....	5,880.00	6,000.00	5,400.00
Atchison, Topeka & Santa Fé, 7s...	7,260.00	6,000.00	6,000.00
St. Paul, Minneapolis & Manitoba, 6s	11,500.00	10,000.00	10,000.00
Chicago, Burlington & Northern, 5s.	7,280.00	7,000.00	6,300.00
Atchison, Topeka & Santa Fé, 5s....	10,200.00	10,000.00	8,000.00
Maine Central, 6s.....	28,750.00	25,000.00	25,000.00
Ionia & Lansing, 8s	10,500.00	10,000.00	10,000.00
Indiana, Bloomington, & West., 5s.	27,000.00	30,000.00	19,500.00
Chicago, Milwaukee & St. Paul, 6s..	23,600.00	20,000.00	20,000.00
	\$308,720.00	\$291,000.00	\$270,720.00
COUNTY.			
Wabasha, Minn., 6s	\$8,000.00	\$8,000.00	\$8,000.00
CITY.			
Kansas City, Mo., 7s	\$32,400.00	\$30,000.00	\$30,000.00
Cincinnati, O., 7 3-10s.....	65,000.00	50,000.00	50,000.00
Lincoln, Neb., 5½s.....	25,000.00	25,000.00	24,875.00
	\$122,400.00	\$105,000.00	\$104,875.00
SCHOOL DISTRICT.			
City of Lincoln, Neb., 6s.....	\$10,000.00	\$10,000.00	\$10,000.00
City of Toledo, Kan., 8s	8,000.00	8,000.00	8,000.00
No. 11, Rock Island County, Ill., 6s..	1,200.00	1,200.00	1,200.00
	\$19,200.00	\$19,200.00	\$19,200.00
MISCELLANEOUS.			
Nebraska Loan & Trust Co. debentures, 6s.....	\$6,500.00	\$6,500.00	\$6,370.00
Muscatine Mortgage & Trust Co. debentures, 6s.....	10,000.00	10,000.00	9,900.00
Minneapolis Gas-light Co., 6s.....	21,000.00	20,000.00	20,000.00
Middlesex Banking Co., 6s.....	500.00	500.00	500.00
Indianapolis Water Supply, 6s....	10,260.00	9,500.00	9,500.00
Topeka Water Supply Co., 6s.....	10,500.00	10,000.00	9,950.00
	\$58,760.00	\$56,500.00	\$56,220.00

SCHEDULE OF STOCKS OF THE AMOSKEAG SAVINGS BANK.

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
Amoskeag National, Manchester...	\$112,500.00	\$90,000.00	\$90,000.00
National Exchange, Boston.....	13,482.00	10,700.00	10,700.00
Tremont National, "	10,100.00	10,000.00	10,000.00
Atlantic National, "	26,600.00	20,000.00	20,000.00
North National, "	13,500.00	10,000.00	10,000.00
Nat. Bank Commerce, "	6,250.00	5,000.00	5,000.00
National Republic, "	7,000.00	5,000.00	5,000.00
Atlas National, "	240.00	200.00	200.00
Eliot National, "	6,550.00	5,000.00	5,000.00
Shawmut National, "	5,800.00	5,000.00	5,000.00
Merchants' National, "	14,000.00	10,000.00	10,000.00
Second National, "	14,500.00	10,000.00	10,000.00
Central National, "	10,500.00	10,000.00	6,000.00
National City, "	1,590.00	1,500.00	1,500.00
Moline National, Moline, Ill.	13,000.00	10,000.00	10,000.00
American Exchange Nat., N. Y.	14,500.00	10,000.00	10,000.00
Merchants' Nat., Kansas City, Mo..	10,800.00	10,000.00	10,000.00
Merchants' National, Toledo, O....	11,000.00	10,000.00	10,000.00
First National, Indianapolis, Ind ...	4,000.00	10,000.00	4,000.00
	\$295,912.00	\$242,400.00	\$232,400.00
RAILROAD.			
New York Central	\$11,200.00	\$10,000.00	\$8,000.00
Eastern, N. H.	17,280.00	16,000.00	14,400.00
Chicago, Burlington & Northern....	3,780.00	4,200.00	1,470.00
Chicago, Burlington & Quincy	98,980.00	70,700.00	70,700.00
Chicago & Western Michigan	5,500.00	10,000.00	3,500.00
Pemigewasset Valley	26,250.00	25,000.00	25,000.00
Concord & Portsmouth	16,800.00	12,000.00	12,000.00
Concord	28,750.00	11,500.00	11,500.00
Manchester & Lawrence	97,400.00	48,700.00	48,700.00
Boston & Albany	27,040.00	13,000.00	12,500.00
Atchison, Topeka & Santa Fé	10,600.00	10,000.00	9,450.00
Chicago, Rock Island & Pacific	25,000.00	20,000.00	20,000.00
Illinois Central	25,800.00	20,000.00	20,000.00
	\$394,380.00	\$271,100.00	\$257,220.00
MISCELLANEOUS.			
Quincy Railroad Bridge	\$43,750.00	\$25,000.00	\$25,000.00
Manchester Gas-light Co.	2,000.00	1,000.00	1,000.00
Ben Franklin Electric Co.	100.00	100.00	100.00
Adams Express Co.	28,600.00	20,000.00	20,000.00
C. N. Nelson Lumber Co.	10,000.00	10,000.00	10,000.00
Moline Plow Co.	30,000.00	40,000.00	20,000.00
	\$114,450.00	\$96,100.00	\$76,100.00
MANUFACTURING.			
Amoskeag Manufacturing Co.	\$46,000.00	\$20,000.00	\$20,000.00
Amory Manufacturing Co.	5,500.00	5,000.00	5,000.00
Stark Mills	33,450.00	30,000.00	30,000.00
Manchester Mills	56,000.00	40,000.00	40,000.00
	\$140,950.00	\$95,000.00	\$95,000.00

ASHLAND SAVINGS BANK. — ASHLAND.

JEREMIAH M. CALLEY, *Pres.*FRANCIS M. HUGHES, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$53,210.05		\$53,210.05
Guaranty fund.....	3,146.19		3,146.19
Surplus.....	10,270.20		10,270.20
Cut down by decree of court, Dec. 24, 1878.....	\$14,206.84		
	\$66,626.44		\$66,626.44

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$21,225.00	\$21,225.00	\$21,225.00
Loans secured by local real estate.....	30,663.70	30,663.70	30,663.70
Loans on personal security.....	7,478.93	7,478.93	7,478.93
Loans on collateral security.....	4,538.64	4,538.64	4,538.64
Bonds of San Miguel County, N. M.....	1,000.00	1,000.00	1,000.00
Balance on deposit in Commonwealth National Bank, Boston ...	856.21	856.21	856.21
Bank fixtures	769.41	769.41	769.41
Cash on hand.....	94.55	94.55	94.55
	\$66,626.44	\$66,626.44	\$66,626.44

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$3,279.33
Deduct expenses for 1886	\$982.32
Deduct state tax for 1886	494.81
	<u>1,477.13</u>
Net profits to be accounted for	\$1,802.20
Dividend of 4 per cent, Jan. 1, 1887	\$1,860.20
Carried from guaranty fund	58.00
	<u>\$1,860.20</u>
Guaranty fund Jan. 1, 1886	\$3,204.19
Other undivided profits Jan. 1, 1886	9,710.21
Total surplus profits Jan. 1, 1886	<u>\$12,914.40</u>

Guaranty fund Jan. 1, 1887	\$3,146.19
Other undivided profits Jan. 1, 1887	9,710.21
Total surplus profits Jan. 1, 1887	<u>\$12,856.40</u>

Decrease for the year 1886 \$58.00

Surplus profits — Jan. 1, 1883, \$1,030.01; Jan. 1, 1884, \$1,636.48; Jan. 1, 1885, \$1,372.75; Jan. 1, 1886, \$12,914.40; Jan. 1, 1887, \$12,856.40.

Incorporated 1872. Charter perpetual.

Examination completed March 29, 1887, by George E. Gage.

Trustees — J. M. Calley, Hiram Hodgdon, Ambrose Scribner, Thos. P. Cheney, Frank L. Hughes, Levi Clough, Albert E. Porter, Benning E. Plaisted, Eri G. Clapp, Moses W. Shapleigh, Francis M. Hughes.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Feb. 17, 1885. Sureties of bond are able to respond. Bond deposited with president of the bank for safe-keeping.

Annual compensation of treasurer, \$600.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,400, by unanimous consent of the trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 301; increase since last examination by Bank Commissioners, 15.

Amount of deposits, \$53,210.05; increase since last examination, \$2,065.08.

Number of single loans of \$1,000 or less to separate parties in the State, 56.

Total amount of loans, \$63,906.27.

Total amount of stocks and bonds, \$1,000.

Largest amount loaned to any individual, corporation, or company, \$9,350.

Amount of assets with interest unpaid for over six months, \$3,400.

The funds of the institution are not invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$42,681.27.

Total amount loaned or invested in New England, \$42,681.27.

Total amount loaned or invested out of New England, \$23,225.

Total amount loaned or invested drawing 6 per cent interest, \$2,000.

Total amount loaned or invested drawing 6½ per cent interest, \$2,350.

Total amount loaned or invested drawing 7 per cent interest, \$53,956.27.

Total amount loaned or invested drawing 8 per cent interest,
\$4,600.

Total amount loaned or invested drawing 10 per cent interest,
\$2,000.

Amount invested from which no income has been received during
the year, \$3,400.

- Dividends for the year ending Dec. 31, 1886, \$1,860.20.

Total expense of institution for the twelve months ending March 31,
1887, \$595.67.

Amount of deposits received since last examination, \$24,430.94.

Amount of dividends declared since last examination, \$1,860.20.

Amount paid on account of deposits since last examination,
\$24,226.06.

BELKNAP SAVINGS BANK. — LACONIA.

NAPOLEON B. GALE, *Pres.*JOHN W. ASHMAN, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$678,416.78		\$678,416.78
Guaranty fund.....	29,000.00		29,000.00
Surplus.....	52,363.47		52,363.47
Premium on stocks and bonds.....	11,518.00		
	\$771,298.25		\$759,780.25

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$240,200.00	\$240,200.00	\$240,200.00
Loans secured by Western city mortgages.....	112,375.00	112,375.00	112,375.00
Loans secured by local real estate.....	119,945.47	119,945.47	119,945.47
Loans on personal security.....	79,511.50	79,511.50	79,511.50
Loans on collateral security.....	21,038.77	21,038.77	21,038.77
U. S. bonds.....	12,950.00	10,000.00	9,950.00
County, city, town, and district bonds.....	49,870.00	49,200.00	48,250.00
Railroad bonds.....	49,810.00	44,000.00	44,000.00
Railroad stock.....	5,250.00	5,000.00	5,000.00
Bank stock.....	3,038.00	2,800.00	2,800.00
Miscellaneous bonds.....	25,250.00	25,000.00	24,650.00
Miscellaneous stocks.....	7,650.00	7,650.00	7,650.00
Balance on deposit in Laconia National Bank.....	148.74	148.74	148.74
Balance of deposits, Boston Safe Deposit and Trust Co.....	25,765.01	25,765.01	25,765.01
Real estate purchased for the bank.....	16,000.00	16,000.00	16,000.00
Bank fixtures.....	500.00	500.00	500.00
Cash on hand.....	1,995.76	1,995.76	1,995.76
	\$771,298.25	\$761,130.25	\$759,780.25

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$45,322.37
Deduct expenses for 1886	\$2,318.70
Deduct state tax for 1886	6,177.46
Deduct shrinkage in real estate and safe	2,500.00
Deduct items charged off	1,065.68
	<u>12,061.84</u>
Net profits to be accounted for	\$33,260.53

Dividend of 2 per cent, March 1, 1886	. \$11,687.87	
Dividend of 3 per cent, Sept. 1, 1886	. 18,323.18	
Balance of profits for 1886	. 3,249.48	
Net profits (as above) accounted for	. ————	\$33,260.53
Guaranty fund Jan. 1, 1886	. \$25,000.00	
Other undivided profits Jan. 1, 1886	. 46,534.60	
Total surplus profits Jan. 1, 1886	. ————	\$71,534.60
Guaranty fund Jan. 1, 1887	. \$29,000.00	
Other undivided profits Jan. 1, 1887	. 45,784.08	
Total surplus profits Jan. 1, 1887	. ————	74,784.08
Increase for the year 1886	. . . . .	\$3,249.48
Surplus profits — Jan. 1, 1883, \$47,019.81; Jan. 1, 1884, \$55,834.63; Jan. 1, 1885, \$65,354.05; Jan. 1, 1886, \$71,534.60; Jan. 1, 1887, \$74,784.08.		

Incorporated 1868. Charter perpetual.

Examination completed Feb. 9, 1887, by George E. Gage.

Trustees — Napoleon B. Gale, Jas. H. Tilton, Samuel W. Sanders, Edwin F. Burleigh, Stephen L. Taylor, Lewis S. Perley, Gorham Swain, Erastus P. Jewell, Edwin C. Lewis, Wm. F. Knight, C. F. Pitman, John T. Busiel.

Treasurer's bond \$60,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 21, 1885. Sureties of bond are able to respond. Bond deposited with J. H. Tilton for safe-keeping.

Clerk — Edgar F. Reeves.

Annual compensation of treasurer, \$1,500.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$11,029.77; as surety, \$9,323.94, by unanimous consent of trustees.

Loans and investments are made by N. B. Gale.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 1,700; increase since last examination by Bank Commissioners, 111.

Amount of deposits, \$678,416.78; increase since last examination, \$45,003.

Amount of bank's assets in Boston for safe-keeping, \$128,200.

Number of single loans of \$1,000 or less to separate parties in the State, 232.

Total amount of loans, \$573,070.74.

Total amount of stocks and bonds, \$142,300.

Largest amount loaned to any individual, corporation, or company,
\$15,000.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$270,440.24.

Total amount loaned or invested in New England, \$317,205.25.

Total amount loaned or invested out of New England, \$443,925.

Total amount loaned or invested drawing 4 per cent interest,
\$26,000.

Total amount loaned or invested drawing 5 per cent interest,
\$35,529.77.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest,
\$10,274.

Total amount loaned or invested drawing 6 per cent interest,
\$272,641.97.

Total amount loaned or invested drawing $6\frac{1}{4}$ per cent interest,
\$4,300.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$7,000.

Total amount loaned or invested drawing 7 per cent interest,
\$282.900.

Total amount loaned or invested drawing 8 per cent interest,
\$69,125.

Total amount loaned or invested drawing 9 per cent interest,
\$1,300.

Total amount loaned or invested drawing 10 per cent interest,
\$16,000.

Dividends for the year ending Dec. 31, 1886: March 1, 1886, 2
per cent, \$11,687.87 ; Sept. 1, 1886, 3 per cent, \$18,323.18.

Total expense of institution for the twelve months ending Feb. 9,
1887, \$2,164.86.

Amount charged off as losses since last examination, \$190.68.

Amount of other taxes, \$176.82.

Amount of deposits received since last examination, \$125,378.44.

Amount of dividends declared since last examination, \$18,323.18.

Amount paid on account of deposits since last examination,
\$98,698.62.

SCHEDULE OF BONDS AND STOCKS OF THE BELKNAP SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Jackson, Lansing & Saginaw, 8s ...	\$20,160.00	\$18,000.00	\$18,000.00
Detroit, Lansing & Northern, 7s	6,250.00	5,000.00	5,000.00
Boston, Concord & Montreal, 7s....	11,300.00	10,000.00	10,000.00
“ “ “ 6s....	12,100.00	11,000.00	11,000.00
	\$49,810.00	\$44,000.00	\$44,000.00
COUNTY.			
Hamilton, Ill., 7s.....	\$5,100.00	\$5,000.00	\$4,050.00
Ottawa, Kan., 8s.....	5,250.00	5,000.00	5,000.00
Belknap, N. H., 5s.....	13,500.00	13,500.00	13,500.00
	\$23,850.00	\$23,500.00	\$22,550.00
TOWNSHIP.			
Buda, Ill., 10s.....	\$6,120.00	\$6,000.00	\$6,000.00
Essex, Ill., 10s.....	5,100.00	5,000.00	5,000.00
Penn, Ill., 10s.....	5,100.00	5,000.00	5,000.00
	\$16,320.00	\$16,000.00	\$16,000.00
SCHOOL DISTRICT.			
Cloud County, No. 32, Kan., 6s.....	\$4,500.00	\$4,500.00	\$4,500.00
McPherson County, Kan., 6s....	200.00	200.00	200.00
Laconia, No. 1, N. H., 5s.....	5,000.00	5,000.00	5,000.00
	\$9,700.00	\$9,700.00	\$9,700.00
MISCELLANEOUS.			
Salina Water-works, Kan., 6s	\$5,250.00	\$5,000.00	\$4,900.00
Danville Water-works, Ill., 6s.....	5,000.00	5,000.00	4,875.00
Galesburg Water-works, Ill., 6s. ...	5,000.00	5,000.00	4,875.00
C. N. Nelson Lumber Co., Minn., 6s.	5,000.00	5,000.00	5,000.00
Laconia and Lake Village Water, N. H., 5s.....	5,000.00	5,000.00	5,000.00
	\$25,250.00	\$25,000.00	\$24,650.00
STOCKS.			
BANK.			
Laconia National, Laconia, N. H....	\$1,568.00	\$1,400.00	\$1,400.00
Citizens' National, Tilton, N. H.	1,470.00	1,400.00	1,400.00
	\$3,038.00	\$2,800.00	\$2,800.00
RAILROAD.			
Pemigewasset Valley.....	\$5,250.00	\$5,000.00	\$5,000.00
MISCELLANEOUS.			
Minnesota Thresher Manuf. Co.....	\$5,150.00	\$5,150.00	\$5,150.00
Kansas Loan and Trust Co., Topeka	2,500.00	2,500.00	2,500.00
	\$7,650.00	\$7,650.00	\$7,650.00

BRISTOL SAVINGS BANK. — BRISTOL.

LEWIS FLING, *President.*GEO. M. CAVIS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$504,518.97		\$504,518.97
Guaranty fund.....	30,000.00		30,000.00
Surplus.....	13,525.20		13,525.20
Premium on stocks and bonds.. ...	9,281.00		
	\$557,325.17		\$548,044.17

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$307,338.59	\$307,338.59	\$307,338.59
Loans secured by local real estate..	31,156.27	31,156.27	31,156.27
Loans secured by personal security	8,017.98	8,017.98	8,017.98
Loans on collateral security.....	10,890.80	10,890.80	10,890.80
Loans secured by Western city mortgages.....	61,000.00	61,000.00	61,000.00
County, city, town, and district bonds.....	20,292.00	19,482.00	19,482.00
Railroad bonds.....	12,330.00	11,000.00	11,000.00
Bank stock.	8,056.00	5,300.00	6,625.00
Miscellaneous bonds.....	34,300.00	34,300.00	34,290.00
Miscellaneous stocks.....	43,300.00	36,800.00	36,800.00
Balance on deposit in Shoe and Leather National Bank, Boston...	4,803.68	4,803.68	4,803.68
In hands of investing agents.....	11,014.20	11,014.20	11,014.20
Real estate acquired or held by foreclosure.....	2,246.95	3,046.95	3,046.95
Cash on hand.....	2,578.70	2,578.70	2,578.70
	\$557,325.17	\$546,729.17	\$548,044.17

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$37,125.94
Deduct expenses for 1886	\$2,405.88
Deduct state tax for 1886	4,136.43
Deduct items charged off	3,259.88
	<u>9,802.19</u>
Net profits to be accounted for	\$27,323.75

Dividend of 4 per cent, Dec. 31, 1886 . .	\$17,812.42
Dividend of 1 per cent, Dec. 31, 1886 . .	4,049.76

Carried to guaranty fund . . .	\$4,000.00
Balance of profits for 1886 . . .	1,461.57
Net profits (as above) accounted for . . .	\$27,323.75
Guaranty fund Jan. 1, 1886 . . .	\$26,000.00
Other undivided profits Jan. 1, 1886 . . .	5,946.22
Total surplus profits Jan. 1, 1886 . . .	\$31,946.22
Guaranty fund Jan. 1, 1887 . . .	\$30,000.00
Other undivided profits Jan. 1, 1887 . . .	7,407.79
Total surplus profits Jan. 1, 1887 . . .	37,407.79

Increase for the year 1886 \$5,461.57

Surplus profits — Jan. 1, 1883, \$18,971.60 ; Jan. 1, 1884, \$23,086.29 ; Jan. 1, 1885, \$26,565.07 ; Jan. 1, 1886, \$31,946.22 ; Jan. 1, 1887, \$37,407.79.

Incorporated 1868. Charter perpetual.

Examination completed March 25, 1887, by Geo. E. Gage and Chas. E. Cooper.

Vice-President — David Mason.

Trustees — Lewis W. Fling, David Mason, Albert Blake, Wm. A. Berry, Benj. F. Perkins, Marshall W. White, Robert A. Horner, Burley M. Ames, Ebenezer K. Pray.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, May 19, 1883. Sureties of bond are able to respond. Bond deposited with president of bank for safe-keeping.

Clerk — Chas. W. Fling.

Annual compensation of treasurer, \$1,600.

Annual compensation of clerk, \$540.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,300 ; as surety, \$1,010, by unanimous consent of trustees.

Loans and investments are made by L. W. Fling, D. Mason, A. Blake, Wm. A. Berry, R. A. Horner, and the treasurer.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 1,314 ; increase since last examination by Bank Commissioners, 49.

Amount of deposits, \$504,518.97 ; increase since last examination, \$28,244.09.

Amount of bank's assets in Concord for safe-keeping, \$31,482.

Number of single loans of \$1,000 or less to separate parties in the State, 118.

Total amount of loans, \$418,403.64.

Total amount of stocks and bonds, \$108,197.

Largest amount loaned to any individual, corporation, or company, \$8,000.

Amount of assets with interest unpaid for over six months, \$16,306.16.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$58,308.32.

Total amount loaned or invested in New England, \$68,412.

Total amount loaned or invested out of New England, \$459,920.59.

Total amount loaned or invested drawing 6 per cent interest, \$86,765.05.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$14,800.

Total amount loaned or invested drawing 7 per cent interest, \$241,672.85.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$1,600.

Total amount loaned or invested drawing 8 per cent interest, \$180,222.74.

Total amount loaned or invested drawing 9 per cent interest, \$225.

Amount invested from which no income has been received during the year, \$3,046.95.

Dividends for the year ending Dec. 31, 1886: 4 per cent, \$17,812.42.

Extra dividend of 1 per cent, amounting to \$4,049.76, declared Dec. 31, 1886.

Total expense of institution for the twelve months ending March 25, 1887, \$2,337.61.

Amount charged off as losses since last examination, \$100.

Amount of other taxes, \$467.91.

Amount of deposits received since last examination, \$88,462.18.

Amount of dividends declared since last examination, \$21,862.18.

Amount paid on account of deposits since last examination, \$82,080.27.

SCHEDULE OF BONDS AND STOCKS OF THE BRISTOL SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Michigan Central, 7s.....	\$1,130.00	\$1,000.00	\$1,000.00
Concord & Claremont, 7s.....	11,200.00	10,000.00	10,000.00
	\$12,330.00	\$11,000.00	\$11,000.00
CITY.			
Decatur, Ill., 7s.	\$5,600.00	\$5,000.00	\$5,000.00
Sandusky, O., 7s.....	3,210.00	3,000.00	3,000.00
	\$8,810.00	\$8,000.00	\$8,000.00
COUNTY.			
Pratt, Kan., 8s.....	\$3,000.00	\$3,000.00	\$3,000.00
SCHOOL.			
	\$982.00	\$982.00	\$982.00
Butler County, Neb., 7s.....	1,000.00	1,000.00	1,000.00
Lynnville, Io., 6s.....	2,700.00	2,700.00	2,700.00
Dodge County, Neb., 7s.....	3,300.00	3,300.00	3,300.00
Saline County, Neb., 7s.....			
Neosho and Labette Union District, Kan., 7s.	500.00	500.00	500.00
	\$8,482.00	\$8,482.00	\$8,482.00
MISCELLANEOUS.			
	\$1,000.00	\$1,000.00	\$990.00
Des Moines Water-works, Io., 6s....	20,300.00	20,300.00	20,300.00
Iowa Loan and Trust Co. deben., 6s.	5,000.00	5,000.00	5,000.00
Equitable Trust Co. debentures, 6s.	5,000.00	5,000.00	5,000.00
Lombard Investment Co. deben., 6s.			
Muscatine Mortgage & Trust Co. de- bentures, 6s.....	3,000.00	3,000.00	3,000.00
	\$34,300.00	\$34,300.00	\$34,290.00
STOCKS.			
BANK.			
Casco National, Portland, Me.....	\$8,056.00	\$5,300.00	\$6,625.00
MISCELLANEOUS.			
Nebraska Loan and Trust Co.....	\$12,000.00	\$10,000.00	\$10,000.00
Iowa Loan and Trust Co.....	12,500.00	10,000.00	10,000.00
Muscatine Mortgage Co.	12,000.00	10,000.00	10,000.00
Anglo-American Land Mortgage and Agency Co.....	6,800.00	6,800.00	6,800.00
	\$43,300.00	\$36,800.00	\$36,800.00

CHESHIRE PROVIDENT INSTITUTION. — KEENE.

A. T. BATCHELDER, *President.*O. G. NIMS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$2,170,875.29		\$2,170,875.29
Guaranty fund.....	105,000.00		105,000.00
Surplus	19,151.17		19,151.17
Premium on stocks and bonds	85,415.49		
	\$2,380,441.95		\$2,295,026.46

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$810,289.28	\$810,289.28	\$810,289.28
Loans secured by local real estate.	446,376.88	446,376.88	446,376.88
Loans on personal security.....	78,796.30	78,796.30	78,796.30
Loans on collateral security.....	102,153.59	102,153.59	102,153.59
County, city, town, and district bonds.....	377,019.96	364,279.96	354,540.96
Railroad bonds.....	133,560.00	122,000.00	122,913.33
Railroad stock	95,035.00	71,000.00	72,162.50
Bank stock.....	83,225.00	65,500.00	77,569.13
Miscellaneous bonds.....	93,950.00	93,700.00	93,675.00
Miscellaneous stocks.....	40,725.12	35,725.12	35,725.12
Balance on deposit in nat. banks..	6,709.05	6,709.05	6,709.05
In hands of investing agents.....	23,857.25	23,857.25	23,857.25
Real estate purchased for the bank	55,000.00	60,383.63	60,383.63
Real estate acquired or held by foreclosure.....	26,750.00	2,879.92	2,879.92
Cash on hand	6,994.52	6,994.52	6,994.52
	\$2,380,441.95	\$2,290,645.50	\$2,295,026.46

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886, and special profits . . .	\$145,274.73
Deduct expenses for 1886	\$3,508.81
Deduct state tax for 1886	19,390.50
Deduct discount in real estate inventory . . .	6,656.24
Deduct items charged off	1,158.44
Deduct premiums paid	2,796.00
	<u>33,509.99</u>

Net profits to be accounted for \$111,764.74

Dividend of 2½ per cent, April 1, 1886	. \$49,568.85
Dividend of 2½ per cent, Oct. 1, 1886	. 51,802.68
Carried to guaranty fund	. 10,000.00
Balance of profits for 1886	. 393.21
Net profits (as above) accounted for	—————\$111,764.74
Guaranty fund Jan. 1, 1886	. \$100,000.00
Other undivided profits Jan. 1, 1886	. 31,080.26
Total surplus profits Jan. 1, 1886	—————\$131,080.26
Guaranty fund Jan. 1, 1887	. \$110,000.00
Other undivided profits Jan. 1, 1887	. 31,473.47
Total surplus profits Jan. 1, 1887	————— 141,473.47
Increase for the year 1886	. . . . . \$10,393.21
Surplus profits — Jan. 1, 1883, \$82,639.95 ; Jan. 1, 1884, \$109,- 685.44 ; Jan. 1, 1885, \$128,874.41 ; Jan. 1, 1886, \$131,080.26 ; Jan. 1, 1887, \$141,473.47.	

Incorporated 1833. Charter perpetual.

Examination completed Dec. 29, 1886, by Chas. E. Cooper and George E. Gage.

Vice-Presidents — Wm. S. Briggs, R. H. Porter.

Trustees — John Henry Elliot, Geo. A. Wheelock, Henry C. Piper, Edward Farrar, C. J. Amidon, Barrett Ripley, J. G. Bellows, Geo. H. Tilden, F. C. Faulkner, J. R. Beal, Geo. W. Stearns, Silas Hardy, Reuben Stewart, F. H. Kingsbury, Frederic A. Faulkner.

Treasurer's bond \$150,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 19, 1882. Sureties of bond are able to respond. Bond deposited with Wm. S. Briggs, vice-president, for safe-keeping.

Clerk — Alice G. Porter.

Annual compensation of treasurer, \$2,500.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$7,616.09 ; as surety, \$11,-062.50, by unanimous consent of trustees.

Loans and investments are made by A. T. Batchelder, Barrett Ripley, R. H. Porter, J. R. Beal, Reuben Stewart ; meet weekly.

Reports are made as required by law.

This bank receives 2½ per cent interest on its deposits in Boston.

Number of depositors, 4,316 ; increase since last examination by Bank Commissioners, 59.

Amount of deposits, \$2,170,875.29 ; increase since last examination, \$168,839.99.

Number of single loans of \$1,000 or less to separate parties in the State, 586.

Total amount of loans, \$1,437,616.05.

Total amount of stocks and bonds, \$756,586.04.

Largest amount loaned to any individual, corporation, or company, \$20,000.

Amount of assets with interest unpaid for over six months, \$21,883.96.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$772,434.32.

Total amount loaned or invested in New England, \$797,331.32.

Total amount loaned or invested out of New England, \$1,460,034.32.

Total amount loaned or invested drawing 4 per cent interest, \$55,000.

Total amount loaned or invested drawing 5 per cent interest, \$10,000.

Total amount loaned or invested drawing 6 per cent interest, \$887,151.89.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$17,000.

Total amount loaned or invested drawing 7 per cent interest, \$766,008.78.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$10,000.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$6,600.

Total amount loaned or invested drawing 8 per cent interest, \$413,931.72.

Total amount loaned or invested drawing 9 per cent interest, \$4,665.50.

Total amount loaned or invested drawing 10 per cent interest, \$57,963.24.

Total amount loaned or invested drawing 12 per cent interest, \$3,000.

Total amount loaned or invested drawing 15 per cent interest, \$2,500.

Amount invested from which no income has been received during the year, \$11,000.

Dividends for the year ending Dec. 31, 1886: April 1, 1886, $2\frac{1}{2}$ per cent, \$49,568.85; Oct. 1, 1886, $2\frac{1}{2}$ per cent, \$51,802.68.

Total expense of institution for the twelve months ending Dec. 29, 1886, \$3,508.81.

Amount charged off as losses since last examination, \$158.44.

Amount of other taxes, \$1,012.18.

Amount of deposits received since last examination, \$363,423.13.

Amount of dividends declared since last examination, \$101,371.53.

Amount paid out on account of deposits since last examination, \$295,954.67.

SCHEDULE OF BONDS AND STOCKS OF THE CHESHIRE PROVIDENT
INSTITUTION.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Des Moines, Osceola & Southern, 7s	\$5,000.00	\$10,000.00	\$10,000.00
Michigan Central, 8s.....	12,960.00	12,000.00	12,000.00
Chicago, Burlington & Quincy, 7s..	26,000.00	20,000.00	20,000.00
Louisiana & Missouri River, 7s....	12,125.00	10,000.00	9,225.00
Jackson, Lansing & Saginaw, 8s....	33,600.00	30,000.00	30,663.33
Chicago, Milwaukee & St. Paul, 7s..	12,450.00	10,000.00	10,850.00
Indiana, Bloomington & Western, 6s	9,625.00	10,000.00	10,250.00
Kansas Pacific, 6s.....	10,600.00	10,000.00	9,925.00
Kansas City, Lawrence & South'n, 6s	11,200.00	10,000.00	10,000.00
	\$133,560.00	\$122,000.00	\$122,913.33
COUNTY.			
Cassia, Id., 8s.....	\$5,100.00	\$5,000.00	\$5,000.00
Clay, Ill., 7s.....	10,000.00	10,000.00	8,600.00
Sangamon, Ill., 8s.....	10,800.00	10,000.00	9,410.00
Mason, " 10s.....	11,500.00	10,000.00	10,600.00
Schuyler, " 6s.....	10,000.00	10,000.00	8,450.00
Shawnee, " 10s.....	8,000.00	8,000.00	8,000.00
Rice, " 10s.....	5,200.00	5,000.00	5,000.00
Polk, Minn., 12s.....	3,000.00	3,000.00	3,300.00
Davison, Dak., 7s.....	10,200.00	10,000.00	10,000.00
Henry, " 7s.....	5,500.00	5,000.00	4,625.00
O'Brien, " 7s.....	10,000.00	10,000.00	10,000.00
Cavelier, " 8s.....	6,300.00	6,000.00	6,000.00
Saguache, Col., 7s.....	5,150.00	5,000.00	5,000.00
San Miguel, Minn., 6s.....	5,000.00	5,000.00	4,653.50
Delta, Col., 8s.....	5,250.00	5,000.00	5,000.00
Bingham, Id., 8s.....	22,050.00	20,000.00	20,000.00
Oneida, " 8s.....	10,600.00	10,000.00	10,000.00
Rice, Kan., 6s.....	2,000.00	2,000.00	1,960.00
Lawrence, Dak., 5s.....	8,600.00	10,000.00	8,600.00
Socorro, N. M., 6s.....	10,000.00	10,000.00	9,500.00
Uinta, Wyo., 6s.....	10,300.00	10,000.00	10,000.00
	\$174,550.00	\$169,000.00	\$163,698.50
WARRANTS.			
Custer County, 10s.....	\$3,810.95	\$3,810.95	\$3,810.95
Mesa " 10s.....	2,032.67	2,032.67	2,032.67
La Plata " 10s.....	5,129.62	5,129.62	5,129.62
	\$10,973.24	\$10,973.24	\$10,973.24
CITY.			
Golden, Col., 8s.....	\$5,300.00	\$5,000.00	\$5,000.00
Jersey, N. J., 7s.....	10,400.00	10,000.00	10,000.00
Decatur, Ill., 7s.....	11,200.00	10,000.00	9,900.00
Muskegon, Mich., 8s.....	17,250.00	15,000.00	14,850.00
Pomeroy, O., 8s.....	11,500.00	10,000.00	9,950.00
Toledo, O., 7 3-10s.....	10,800.00	10,000.00	9,800.00
Toledo, O., 8s.....	5,450.00	5,000.00	5,000.00
Evansville, Ind., 7s.....	7,500.00	10,000.00	8,750.00
Colorado Springs, Col., 7s.....	10,600.00	10,000.00	10,000.00
Colorado Springs, Col., 6s.....	15,000.00	15,000.00	15,000.00
Huron, Dak., 7s.....	5,000.00	5,000.00	5,000.00
Fort Collins, Col., 7s.....	15,750.00	15,000.00	14,850.00
Canon, Col., 7s.....	10,000.00	10,000.00	10,000.00
Milbank, Dak., 7s.....	10,200.00	10,000.00	10,000.00
	\$145,950.00	\$140,000.00	\$138,100.00

SCHEDULE OF BONDS AND STOCKS OF THE CHESHIRE PROVIDENT
INSTITUTION. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT.			
Chaffee County, No. 7, Col., 10s.....	\$7,490.00	\$7,000.00	\$7,000.00
Durango, La Plata County, Col., 8s	8,000.00	8,000.00	8,000.00
	\$15,490.00	\$15,000.00	\$15,000.00
TOWNSHIP.			
Monticello, Ill., 8s.....	\$5,000.00	\$5,000.00	\$5,000.00
Mission, Kan., 8s.....	10,000.00	10,000.00	7,500.00
Richland, " 8s.....	2,566.72	2,566.72	2,304.22
Grant, " 10s.....	4,950.00	4,500.00	4,725.00
Garfield, " 10s.....	740.00	740.00	740.00
Bolton, " 10s.....	1,500.00	1,500.00	1,500.00
Wahpeton, Dak., 8s.....	5,300.00	5,000.00	5,000.00
	\$30,056.72	\$29,306.72	\$26,769.22
MISCELLANEOUS.			
Iowa Loan and Trust Co. deben., 6s.	\$3,500.00	\$3,500.00	\$3,500.00
Lombard Investment Co. deben., 6s.	18,700.00	18,700.00	18,700.00
New Hamp. Trust Co. deben., 6s....	50,000.00	50,000.00	50,000.00
Keene Gas-light Co., 6s.....	10,000.00	10,000.00	10,000.00
Topeka Water Supply Co., 6s.....	5,250.00	5,000.00	4,975.00
Muscatine Mortgage and Trust Co. deben., 6s.....	5,000.00	5,000.00	5,000.00
Northwestern Trust Co. deben., 6s..	1,500.00	1,500.00	1,500.00
	\$93,950.00	\$93,700.00	\$93,675.00
STOCKS.			
BANK.			
Keene National, Keene.....	\$3,360.00	\$2,100.00	\$2,640.00
Ashuelot " ".....	16,800.00	12,000.00	14,805.00
Cheshire " ".....	7,000.00	5,000.00	7,000.00
Winchester National, Winchester..	22,990.00	20,900.00	24,296.00
Lancaster National, Lancaster.....	11,300.00	10,000.00	10,000.00
Importers and Traders', N. Y.....	7,875.00	2,500.00	5,828.13
Citizens', Keene.....	3,900.00	3,000.00	3,000.00
Citizens', Wichita, Kan.....	10,000.00	10,000.00	10,000.00
	\$83,225.00	\$65,500.00	\$77,569.13
RAILROAD.			
Morris & Essex.....	\$29,085.00	\$21,000.00	\$21,000.00
Pittsburg, Fort Wayne & Chicago..	29,200.00	20,000.00	20,000.00
Cleveland & Pittsburg.....	30,200.00	20,000.00	20,000.00
Union Pacific.....	6,550.00	10,000.00	11,162.50
	\$95,035.00	\$71,000.00	\$72,162.50
MISCELLANEOUS.			
Iowa Loan and Trust Co.....	\$25,000.00	\$20,000.00	\$20,000.00
American Mort. and Invest. Co.....		1,000.00	1,000.00
Anglo-Am. Land Mort. Agency Co.	9,725.12	9,725.12	9,725.12
Muscatine Mortgage Co.....	6,000.00	5,000.00	5,000.00
	\$40,725.12	\$35,725.12	\$35,725.12

CITY SAVINGS BANK. — NASHUA.

LUTHER A. ROBY, *President*. ELBRIDGE P. BROWN, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors	\$274,436.04		\$274,436.04
Guaranty fund	3,000.00		3,000.00
Surplus	12,339.90		12,339.90
Premium on stocks and bonds	1,265.46		
	\$291,041.40		\$289,775.94

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$76,964.66	\$76,964.66	\$76,964.66
Loans secured by local real estate	63,366.69	63,366.69	63,366.69
Loans on personal security	34,876.00	34,876.00	34,876.00
Loans on personal security (Texas)	9,998.75	9,998.75	9,998.75
Loans on collateral security	37,937.83	37,937.83	37,937.83
Loans on collateral security (Texas)	11,100.00	11,100.00	11,100.00
Railroad bonds	3,435.00	3,000.00	2,878.42
Railroad stocks	20,043.25	19,800.00	19,274.37
Bank stock	19,635.00	18,700.00	19,635.00
Miscellaneous bonds	3,000.00	3,000.00	3,000.00
Miscellaneous stocks	7,800.00	7,800.00	7,800.00
Balance on deposit in First National Bank, Nashua	1,439.15	1,439.15	1,439.15
Bank fixtures	600.00	600.00	600.00
Cash on hand	845.07	845.07	845.07
	\$291,041.40	\$289,428.15	\$289,775.94

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$15,469.07
Deduct expenses for 1886	\$2,032.95
Deduct state tax for 1886	2,229.52
Deduct city tax for 1886	31.14
Deduct items charged off	22.50
	<hr/> 4,316.11
Net profits to be accounted for	\$11,152.96
Dividend of 5 per cent, 1886	\$10,097.83
Interest on accounts closed	247.75
Balance of profits for 1886	807.38
Net profits (as above) accounted for	<hr/> \$11,152.96

Guaranty fund Jan. 1, 1886	\$3,000.00	
Other undivided profits Jan. 1, 1886	6,192.87	
Total surplus profits Jan. 1, 1886	—————	\$9,192.87
Guaranty fund Jan. 1, 1887	\$3,000.00	
Other undivided profits Jan. 1, 1887	7,000.25	
Total surplus profits Jan. 1, 1887	—————	10,000.25
		<hr/>
Increase for the year 1886		\$807.38

Surplus profits — Jan. 1, 1886, \$9,192.87; Jan. 1, 1887, \$10,000.25.

Incorporated 1863. Charter perpetual.

Examination completed April 15, 1887, by Geo. E. Gage.

Vice-President — C. H. Burns.

Trustees — L. A. Roby, E. P. Brown, J. A. Spalding, C. H. Burns, S. D. Greeley, J. M. Swallow, Edward Hardy, Rufus Fitzgerald, D. A. Fletcher, E. O. Blunt, James W. Reed.

Treasurer's bond \$60,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Oct. 12, 1885. Sureties of bond are able to respond. Bond deposited with J. A. Spalding for safe-keeping.

Clerk — W. R. Wilcox.

Annual compensation of treasurer, \$1,400.

Annual compensation of clerks paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$19,169; as surety, \$12,500, by unanimous consent of trustees.

Loans and investments are made by investment committee — J. A. Spalding, C. H. Burns, E. P. Brown.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,152; increase since last examination by Bank Commissioners, 264.

Amount of deposits, \$274,436.04; increase since last examination, \$47,926.59.

Number of single loans of \$1,000 or less to separate parties in the State, 107.

Total amount of loans, \$234,243.93.

Total amount of stocks and bonds, \$52,647.79.

Largest amount loaned to any individual, corporation, or company, \$10,000.

Amount of assets with interest unpaid for over six months, \$12,403.22.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$168,602.73.

Total amount loaned or invested in New England, \$173,602.73.

Total amount loaned or invested out of New England, \$112,593.41.

Total amount loaned or invested drawing 6 per cent interest,
\$58,127.83.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$97,852.

Total amount loaned or invested drawing 7 per cent interest,
\$65,380.69.

Total amount loaned or invested drawing 8 per cent interest,
\$55,838.41.

Total amount loaned or invested drawing 9 per cent interest,
\$3,165.

Total amount loaned or invested drawing $9\frac{1}{2}$ per cent interest,
\$1,800.

Total amount loaned or invested drawing 10 per cent interest,
\$2,400.

Amount invested from which no income has been received during
the year, \$2,000.

Dividends for the year ending Dec. 31, 1886: Oct. 1, 1886,
\$10,097.83.

Total expense of institution for the twelve months ending Jan. 1,
1887, \$1,782.95.

Amount charged off as losses since last examination, \$450.

Amount of other taxes, \$31.14.

Amount of deposits received since last examination, \$99,996.

Amount of dividends declared since last examination, \$10,097.83.

Amount paid on account of deposits since last examination,
\$62,167.24.

SCHEDULE OF BONDS AND STOCKS OF THE CITY SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Union Pacific, 8s.....	\$3,435.00	\$3,000.00	\$2,878.42
MISCELLANEOUS.			
New England Loan & Trust Co., 7s.	\$2,500.00	\$2,500.00	\$2,500.00
Burlington Steam Supply Co., 7s....	500.00	500.00	500.00
	\$3,000.00	\$3,000.00	\$3,000.00
STOCKS.			
BANK.			
First National, Nashua.....	\$19,635.00	\$18,700.00	\$19,695.00
RAILROAD.			
Union Pacific.....	\$1,230.00	\$2,000.00	\$2,245.00
Chicago, Burlington & Quincy.....	3,360.00	2,400.00	2,985.00
Nashua & Lowell.....	477.00	300.00	285.00
Peterborough ...	1,820.00	2,600.00	1,925.00
Boston, Concord & Montreal, pref..	13,156.25	12,500.00	11,834.37
	\$20,043.25	\$19,800.00	\$19,274.37
MISCELLANEOUS.			
Capital Fire Insurance Co. ...	\$2,000.00	\$2,000.00	\$2,000.00
Indian Head Fire Insurance Co.....	800.00	800.00	800.00
Atherton Machine Co. (Lowell).....	5,000.00	5,000.00	5,000.00
	\$7,800.00	\$7,800.00	\$7,800.00

COCHECO SAVINGS BANK. — DOVER.

GEORGE W. TASH, *President.*HARRY HOUGH, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$228,418.25		\$228,418.25
Guaranty fund	2,907.22		2,907.22
Surplus	9,175.00		9,175.00
Premium on stocks and bonds.....	2,444.77		
	<u>\$242,945.24</u>		<u>\$240,500.47</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$5,700.00	\$5,700.00	\$5,700.00
Loans secured by local real estate	38,307.00	38,307.00	38,307.00
Loans on personal security	20,023.20	20,023.20	20,023.20
Loans on collateral security.....	36,280.08	36,280.08	36,280.08
Railroad bonds	82,250.00	80,450.00	81,392.75
Railroad stock.....	16,750.00	20,000.00	18,626.25
Bank stock.....	33,989.00	32,300.00	30,525.23
Balance on deposit in Cochecho Na- tional Bank	830.30	830.30	830.30
Real estate acquired or held by foreclosure.....	8,815.66	8,815.66	8,815.66
	<u>\$242,945.24</u>	<u>\$242,706.24</u>	<u>\$240,500.47</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$15,331.21
Deduct expenses for 1886	\$1,083.84
Deduct state tax for 1886	2,195.18
Deduct items charged off	1,037.50
	<u>4,316.52</u>
Net profits to be accounted for	\$11,014.69
Dividend of 2 per cent, July, 1886 . . .	\$4,358.49
Dividend of 2 per cent, Jan., 1887 . . .	4,386.50
Carried to guaranty fund	1,225.00
Balance of profits for 1886	1,044.70
Net profits (as above) accounted for . .	<u>\$11,014.69</u>

Guaranty fund Jan. 1, 1886	\$9,175.00	
Other undivided profits Jan. 1, 1886	8.14	
Total surplus profits Jan. 1, 1886	—————	\$9,183.14
Guaranty fund Jan. 1, 1887	\$10,400.00	
Other undivided profits Jan. 1, 1887	1,044.70	
Total surplus profits Jan. 1, 1887	—————	11,444.70
<hr/>		
Increase for the year 1886		\$2,261.56
Surplus profits — Jan. 1, 1883, \$7,070.52 ; Jan. 1, 1884, \$8,-418.36 ; Jan. 1, 1885, \$8,225.00 ; Jan. 1, 1886, \$9,183.14 ; Jan. 1, 1887, \$11,444.70.		

Incorporated 1872. Charter perpetual.

Examination completed Sept. 30, 1886, by George E. Gage.

Vice-President — M. S. Hanscom.

Trustees — George W. Tash, M. S. Hanscom, James E. Lothrop, Charles W. Wiggin, Owen J. Lewis, Rufus Haley, Abram M. Drake, Harrison Haley, Ralph Hough, George A. Thompson, Michael Killoran, William B. Lyman, A. T. Coleman, A. B. Burwell, Harry Hough, Richard Waldron, John S. Glast.

Treasurer's bond \$35,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Nov. 22, 1881. Sureties of bond are able to respond. Bond deposited with vice-president for safe-keeping.

Annual compensation of treasurer, \$900.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$12,989.92 ; as surety, \$3,150, by unanimous consent of trustees.

Loans and investments are made by George W. Tash, M. S. Hanscom, H. Haley, C. W. Wiggin, H. Hough.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 674 ; increase since last examination by Bank Commissioners, 10.

Amount of deposits, \$228,418.25 ; increase since last examination, \$5,524.17.

Number of single loans of \$1,000 or less, to separate parties in the State, 54.

Total amount of loans, \$105,447.15.

Total amount of stocks and bonds, \$130,544.23.

Largest amount loaned to any individual, corporation, or company, \$9,000.

Amount of assets with interest unpaid for over six months, \$2,300.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$133,520.17.

Total amount loaned or invested in New England, \$133,520.17.

Total amount loaned or invested out of New England, \$106,150.

Total amount loaned or invested drawing 6 per cent interest, \$176,410.28.

Total amount loaned or invested drawing 7 per cent interest, \$40,700.

Total amount loaned or invested drawing 1½ per cent interest, \$5,136.87.

Total amount loaned or invested drawing 8 per cent interest, \$500.

Amount invested from which no income has been received during the year, \$16,923.03.

Dividends for the year ending Dec. 31, 1886 : July, 1886, 2 per cent, \$4,358.49 ; January, 1887, 2 per cent, \$4,386.50.

Total expense of institution for the twelve months ending Sept. 30, 1886, \$983.40.

Amount of other taxes, \$66.94.

Amount of deposits received since last examination, \$49,490.74.

Amount of dividends declared since last examination, \$8,581.38.

Amount paid on account of deposits since last examination, \$52,547.95.

SCHEDULE OF BONDS AND STOCKS OF THE COCHECO SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
New York & New England, 7s.....	\$25,400.00	\$20,000.00	\$21,592.75
Southern Pacific (of California), 6s.	11,300.00	10,000.00	10,512.50
Atchison, Topeka & Santa Fé, 6s....	10,700.00	10,000.00	10,600.00
Atlantic & Pacific, 6s.....	8,550.00	10,000.00	10,356.25
Kansas Pacific, 6s	11,500.00	10,000.00	10,337.50
Sonora, 7s	5,150.00	5,000.00	4,850.00
Texas & Pacific, 6s	3,700.00	5,450.00	4,906.25
Mexican Central, 4s.....	5,950.00	10,000.00	8,237.50
	\$82,250.00	\$80,450.00	\$81,392.75
STOCKS.			
BANK.			
Lake National, Wolfeborough.....	\$1,284.00	\$1,200.00	\$1,236.00
Farmington National, Farmington.	575.00	500.00	503.33
Cocheco National, Dover.....	32,130.00	30,600.00	28,785.90
	\$33,989.00	\$32,300.00	\$30,525.23
RAILROAD.			
Atchison, Topeka & Santa Fé.....	\$10,600.00	\$10,000.00	\$8,988.75
Union Pacific.....	6,150.00	10,000.00	9,637.50
	\$16,750.00	\$20,000.00	\$18,626.25

CONNECTICUT RIVER SAVINGS BANK. — CHARLESTOWN.

RICHARD ROBERTSON, *President*. GEORGE OLCOTT, *Treasurer*.

STATEMENT.

Liabilities.

Amount due Depositors.....	\$558,536.63		\$558,536.63
Guaranty fund.....	26,000.00		26,000.00
Surplus.....	146.52		146.52
Premium on stocks and bonds.....	1,431.00		
	\$586,114.15		\$584,683.15

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$302,551.25	\$302,551.25	\$302,551.25
Loans secured by local real estate.....	35,704.50	35,704.50	35,704.50
Loans on personal security.....	33,956.18	33,956.18	33,956.18
Loans on personal security (Western).....	10,000.00	10,000.00	10,000.00
Loans on collateral security.....	16,545.00	16,545.00	16,545.00
Loans on collateral security (Western).....	23,500.00	23,500.00	23,500.00
County, city, town, and district bonds.....	65,570.98	57,299.98	63,994.98
Railroad bonds.....	18,755.00	16,000.00	18,700.00
Bank stock.....	18,348.00	13,900.00	17,548.00
Miscellaneous bonds.....	32,000.00	32,000.00	33,000.00
Balance on deposit in Charlestown National Bank.....	27,633.24	27,633.24	27,633.24
Real estate acquired or held by foreclosure.....	1,550.00	1,550.00	1,550.00
	\$586,114.15	\$570,640.15	\$584,683.15

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$35,303.05
Deduct expenses for 1886	\$1,147.94
Deduct state tax for 1886	5,205.45
Deduct items charged off	1,430.00
	<u>7,783.39</u>
Net profits to be accounted for	\$27,519.66

Dividend of $2\frac{1}{2}$ per cent, May, 1886 . . .	\$12,536.02
Dividend of $2\frac{1}{2}$ per cent, November, 1886 . . .	13,183.64
Carried to guaranty fund	1,800.00
Net profits (as above) accounted for	————— \$27,519.66
Guaranty fund Jan. 1, 1886	\$24,200.00
Total surplus profits Jan. 1, 1886	————— \$24,200.00
Guaranty fund Jan. 1, 1887	\$26,000.00
Total surplus profits Jan. 1, 1887	————— 26,000.00

Increase for the year 1886 \$1,800.00

Surplus profits — Jan. 1, 1883, \$14,000; Jan. 1, 1884, \$16,000; Jan. 1, 1885, \$18,075; Jan. 1, 1886, \$24,200; Jan. 1, 1887, \$26,000.

Incorporated 1831. Charter perpetual.

Examination completed April 12, 1887, by Geo. E. Gage and Chas. E. Cooper.

Vice-President — Joseph G. Briggs.

Trustees — Richard Robertson, Joseph G. Briggs, Herbert B. Viall, George Olcott, Horace B. Wing, Henry Olcott, Charles C. Kimball, John G. Dinsmore, William H. Labaree, Nathaniel G. Brooks, Herbert W. Bond, Charles H. West, Eben H. Tidd, Samuel L. Fletcher, G. S. Bond, Franklin W. Putnam, Horace Hull, William E. Clark.

Treasurer's bond \$50,000, copy of which is on file in the office of secretary of state and on records of the Bank. Date of bond, March 7, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Herbert W. Bond.

Annual compensation of treasurer, \$2,100.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$9,867, by unanimous consent of trustees.

Loans and investments are made by finance committee of five trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other Banks.

Number of depositors, 1,315; increase since last examination by Bank Commissioners, 27.

Amount of deposits, \$558,536.63; increase since last examination, \$32,495.08.

Amount of Bank's assets in Boston for safe-keeping, \$93,000.

Number of single loans of \$1,000 or less to separate parties in the State, 98.

Total amount of loans, \$422,256.93.

Total amount of stocks and bonds, \$133,242.98.

Largest amount loaned to any individual, corporation, or company, \$13,500.

Amount of assets with interest unpaid for over six months, \$2,700.
The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$129,093.68.

Total amount loaned or invested in New England, \$173,203.68.

Total amount loaned or invested out of New England, \$365,146.23.

Total amount loaned or invested drawing 6 per cent interest, \$158,005.66.

Total amount loaned or invested drawing 7 per cent interest, \$187,294.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$400.

Total amount loaned or invested drawing 8 per cent interest, \$125,862.22.

Total amount loaned or invested drawing $8\frac{1}{2}$ per cent interest, \$6,674.50.

Total amount loaned or invested drawing 9 per cent interest, \$28,259.03.

Total amount loaned or invested drawing 10 per cent interest, \$24,961.50.

Dividends for the year ending Dec. 31, 1886: May, 1886, $2\frac{1}{2}$ per cent, \$12,536.02; November, 1886, $2\frac{1}{2}$ per cent, \$13,183.64.

Total expense of institution for the twelve months ending April 12, 1887, \$2,265.

Amount of other taxes, \$272.94.

Amount of deposits received since last examination, \$92,790.18.

Amount of dividends declared since last examination, \$25,719.66.

Amount paid on account of deposits since last examination, \$85,014.76.

SCHEDULE OF BONDS AND STOCKS OF THE CONNECTICUT RIVER
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Union Pacific, 6s.....	\$12,980.00	\$11,000.00	\$12,800.00
Central Pacific, 6s.....	5,775.00	5,000.00	5,900.00
	\$18,755.00	\$16,000.00	\$18,700.00
CITY.			
Peoria school scrip, Ill., 6s.....	\$5,000.00	\$5,000.00	\$5,000.00
Peoria City note, Ill., 8s.....	5,000.00	5,000.00	5,045.00
Jamestown, Dak., 8s.....	5,000.00	5,000.00	5,000.00
Keene, N. H., 6s.....	206.00	200 00	200.00
Chicago, Ill., 7s.....	5,500.00	5,000.00	5,350.00
Hartford, Conn., 6s.....	12,000.00	10,000.00	11,200.00
St. Louis, Mo., 6s.....	11,390.00	10,000.00	11,400.00
Cincinnati, O., 7s.....	14,300.00	11,000.00	13,750.00
Cleveland, O., 6s.....	5,975.00	5,000.00	5,950.00
	\$64,371.00	\$56,200.00	\$62,895.00
COUNTY.			
Clay, warrants, Minn., 6s.....	\$99.98	\$99.98	\$99.98
Barnes, Dak., 8s.....	1,100.00	1,000.00	1,000.00
	\$1,199.98	\$1,099.98	\$1,099.98
MISCELLANEOUS.			
New England Mort. Security Co., 7s.	\$32,000.00	\$32,000.00	\$33,000.00
STOCKS.			
BANK.			
Connecticut River National.....	\$18,348.00	\$13,900.00	\$17,548.00

CONTOOCCOOK VALLEY SAVINGS BANK. — PETER BOROUGH.

JOHN H. CUTLER, *President*.

W. S. KEYES, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$26,479.84		\$26,479.84
Guaranty fund.....	200.00		200.00
Surplus	944.28		944.28
Premium on stocks and bonds	745.00		
	\$28,369.12		\$27,624.12

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$11,905.00	\$11,905.00	\$11,905.00
Loans secured by local real estate.	7,130.00	7,130.00	7,130.00
Loans on personal security.....	210.00	210.00	210.00
County, city, town, and district bonds.....	2,050.00	2,000.00	1,955.00
Miscellaneous bonds	4,400.00	4,000.00	4,000.00
Miscellaneous stocks.....	2,250.00	2,000.00	2,000.00
Balance on deposit in First National Bank, Peterborough	100.02	100.02	100.02
Real estate acquired or held by foreclosure	100.00	100.00	100.00
Bank fixtures	220.56	220.56	220.56
Cash on hand.....	3.54	3.54	3.54
	\$28,369.12	\$27,669.12	\$27,624.12

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$1,572.94
Deduct expenses for 1886	\$38.66
Deduct state tax for 1886	208.53
	<hr/> 247.19
Net profits to be accounted for	<hr/> \$1,325.75
Dividend of 2 per cent, Jan. 15, 1886	\$226.95
Dividend of 2 per cent, July 15, 1886	385.12
Carried to guaranty fund	150.00
Balance of profits for 1886	563.68
Net profits (as above) accounted for	<hr/> \$1,325.75

Guaranty fund Jan. 1, 1886	\$50.00	
Other undivided profits Jan. 1, 1886	260.62	
Total surplus profits Jan. 1, 1886	<hr/>	\$310.62
Guaranty fund Jan. 1, 1887	\$200.00	
Other undivided profits Jan. 1, 1887	824.30	
Total surplus profits Jan. 1, 1887	<hr/>	1,024.30
Increase for the year 1886		<hr/> \$713.68
Surplus profits — Jan. 1, 1885, \$10.64 ; Jan. 1, 1886, \$310.62 ; Jan. 1, 1887, \$1,024.30.		

Incorporated 1883. Charter perpetual.

Examination completed March 11, 1887, by George E. Gage and Charles E. Cooper.

Vice-Presidents — Charles Wilder, Charles Scott.

Trustees — John P. Hills, Sylvester Tenney, Henry Knight, D. M. White, William Moore, L. F. Richardson, Winslow S. Keyes, A. D. Tuttle, Marshall Nay, Dalphon Osborn, Daniel G. Jones, John Cragin, R. B. Hatch, Jesse Martin, Thomas B. Tucker.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Feb. 3, 1885. Sureties of bond are able to respond. Bond deposited with vice-president for safe-keeping.

No compensation of treasurer.

Officers have taken their official oath.

Loans and investments are made by S. Tenney, J. H. Cutler, D. Osborn, P. B. Tucker, and R. B. Hatch.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 150 ; increase since last examination by Bank Commissioners, 40.

Amount of deposits, \$26,479.84 ; increase since last examination, \$5,632.57.

Number of single loans of \$1,000 or less to separate parties in the State, 22.

Total amount of loans, \$19,245.

Total amount of stocks and bonds, \$7,955.

Largest amount loaned to any individual, corporation, or company, \$1,000.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$8,764.12.

Total amount loaned or invested in New England, \$8,764.12.

Total amount loaned or invested out of New England, \$18,905.

Total amount loaned or invested drawing 6 per cent interest, \$7,340.

Total amount loaned or invested drawing 7 per cent interest,
\$9,355.

Total amount loaned or invested drawing 8 per cent interest,
\$8,050.

Total amount loaned or invested drawing 10 per cent interest,
\$500.

Dividends for the year ending Dec. 31, 1886 : Jan. 15, 1886, 2 per
cent, \$226.95 ; July 15, 2 per cent, \$385.12.

Amount of deposits received since last examination, \$13,984.88.

Amount of dividends declared since last examination, \$966.79.

Amount paid on account of deposits since last examination,
\$8,762.45.

SCHEDULE OF BONDS AND STOCKS OF THE CONTOOCCOOK VALLEY
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
TOWNSHIP.			
Tamarac, Marshall Co., Minn., 10s..	\$550.00	\$500.00	\$520.00
SCHOOL DISTRICT.			
Weston, Dak., 7s.....	\$1,500.00	\$1,500.00	\$1,455.00
MISCELLANEOUS.			
Brainerd Water Co., Minn., 7s.....	\$4,400.00	\$4,000.00	\$4,000.00
STOCKS.			
Nebraska Loan and Trust Co.....	\$1,200.00	\$1,000.00	\$1,000.00
New Hampshire Trust Co.....	1,050.00	1,000.00	1,000.00
	\$2,250.00	\$2,000.00	\$2,000.00

CONWAY SAVINGS BANK. — CONWAY.

BENJ. F. CLARK, *President*.C. W. WILDER, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$66,068.47		\$66,068.47
Amount due business depositors...	1,017.75		1,017.75
Guaranty fund.....	2,160.08		2,160.08
Surplus	2,403.85		2,403.85
	<u>\$71,650.15</u>		<u>\$71,650.15</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by local real estate.	\$44,591.88	\$44,591.88	\$44,591.88
Loans on personal security.....	14,414.00	14,414.00	14,414.00
Loans on collateral security.....	2,965.00	2,965.00	2,965.00
Balance on deposit in National Exchange Bank, Boston.....	3,153.34	3,153.34	3,153.34
Real estate acquired or held by foreclosure.....	6,014.56	6,014.56	6,014.56
Cash on hand.....	511.37	511.37	511.37
	<u>\$71,650.15</u>	<u>\$71,650.15</u>	<u>\$71,650.15</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$3,580.59
Deduct expenses for 1886	\$603.22
Deduct state tax for 1886	549.27
Deduct items charged off	90.94
	<u>1,243.43</u>
Net profits to be accounted for	\$2,337.16
Dividend of 1½ per cent, June 30, 1886	\$801.79
Dividend of 2 per cent, Dec. 31, 1886	1,154.55
Carried to guaranty fund	242.81
Balance of profits for 1886	138.01
Net profits (as above) accounted for	<u>\$2,337.16</u>
Guaranty fund Jan. 1, 1886	\$1,917.27
Other undivided profits Jan. 1, 1886	1,621.14
Total surplus profits Jan. 1, 1886	<u>\$3,538.41</u>

Guaranty fund Jan. 1, 1887	\$2,160.08	
Other undivided profits Jan. 1, 1887	1,759.15	
Total surplus profits Jan. 1, 1887	<u> </u>	\$3,919.23

Increase for the year 1886 \$380.82

Surplus profits — Jan. 1, 1883, \$1,121.77 ; Jan. 1, 1884, \$1,645.03 ; Jan. 1, 1885, \$2,192.52 ; Jan. 1, 1886, \$3,538.41 ; Jan. 1, 1887, \$3,919.23.

Incorporated 1869. Charter perpetual.

Examination completed April 25, 1887, by George E. Gage.

Vice-President — Richard B. Thom.

Trustees — L. H. Eastman, C. W. Wilder, R. B. Thom, J. J. Burke, Samuel Hazleton, Samuel Hayes, S. C. Hill, Wm. Robertson, S. M. Davis, Benj. F. Clark, L. C. Quint, G. P. Stilphin, J. A. Carlton, Wm. Kennett, F. W. Davis, F. L. Mason, Wm. S. Abbott, H. B. Fifield.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 20, 1886. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — J. C. L. Wood.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

Indebtedness of trustees as surety, \$102.36, by unanimous consent of trustees.

Loans and investments are made by a committee of trustees.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 271 ; increase since last examination by Bank Commissioners, 22.

Amount of deposits, \$66,068.47 ; increase since last examination, \$7,931.01.

Number of single loans of \$1,000 or less to separate parties in the State, 122.

Total amount of loans, \$64,334.44.

Largest amount loaned to any individual, corporation, or company, \$3,200.

Amount of assets with interest unpaid for over six months, \$2,237.36.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$67,970.88.

Total amount loaned or invested in New England, \$67,970.88.

Total amount loaned or invested drawing 6 per cent interest, \$61,970.88.

Amount invested from which no income has been received during the year, \$6,000.

Dividends for the year ending Dec. 31, 1886: June 30, 1886, $1\frac{1}{2}$ per cent, \$801.79; Dec. 31, 1886, 2 per cent, \$1,154.55.

Total expense of the institution for the twelve months ending April 25, 1887, \$533.36.

Amount of deposits received since last examination, \$40,761.67.

Amount of dividends declared since last examination, \$3,015.33.

Amount paid on account of deposits since last examination, \$35,879.17.

DARTMOUTH SAVINGS BANK. — HANOVER.

N. S. HUNTINGTON, *President.*CHAS. P. CHASE, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$778,833.56		\$778,833.56
Guaranty fund.....	18,000.00		18,000.00
Surplus.....	35,072.23		35,072.23
Premium on stocks and bonds.....	46,192.25		
	\$878,098.04		\$831,905.79

Resources.

	Market Value. April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$354,190.00	\$354,190.00	\$354,190.00
Loans secured by local real estate..	48,450.00	48,450.00	48,450.00
Loans on personal security.....	8,216.27	8,216.27	8,216.27
Loans on collateral security.....	8,415.00	8,415.00	8,415.00
County, city, town, and district bonds	131,724.00	127,209.00	122,654.00
Railroad bonds.....	255,470.00	248,500.00	225,946.25
Railroad stock	3,848.50	3,100.00	2,900.00
Bank stock.....	19,250.00	15,400.00	15,400.00
Miscellaneous bonds.....	22,347.07	27,747.07	19,547.07
Balance on deposit in Dartmouth National Bank.....	15,387.20	15,387.20	15,387.20
Real estate, bank building.....	8,000.00	8,000.00	8,000.00
Real estate acquired or held by foreclosure.....	2,800.00	2,800.00	2,800.00
	\$878,098.04	\$867,414.54	\$831,905.79

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$57,925.10
Deduct expenses for 1886	\$2,179.17
Deduct state tax for 1886	7,436.97
Deduct items charged off	8,030.71
	<u>17,646.85</u>

Net profits to be accounted for \$40,278.25

Dividend of 2 per cent, January, 1886 . \$13,938.62

Dividend of 2 per cent, July, 1886 . 14,707.50

Extra dividend, January, 1886	\$31,632.92	
Carried to guaranty fund	3,000.00	
	<hr/>	
	\$63,279.04	
From surplus account	23,000.79	
Net profits (as above) accounted for	<hr/>	\$40,278.25
Guaranty fund Jan. 1, 1886	\$15,000.00	
Other undivided profits Jan. 1, 1886	60,158.44	
Total surplus profits Jan. 1, 1886	<hr/>	\$75,158.44
Guaranty fund Jan. 1, 1887	\$18,000.00	
Other undivided profits Jan. 1, 1887	37,078.71	
Total surplus profits Jan. 1, 1887	<hr/>	55,078.71
	<hr/>	
Decrease for the year 1886		\$20,079.73
Extra dividend	\$31,632.92	
Decrease of surplus	20,079.73	
Actual increase of earnings	<hr/>	\$11,553.19
Surplus profits — Jan. 1, 1883, \$48,373.95 ; Jan. 1, 1884, \$59,- 367.87 ; Jan. 1, 1885, \$68,217.84 ; Jan. 1, 1886, \$75,158.44 ; Jan. 1, 1887, \$55,078.71.		

Incorporated 1860. Charter perpetual.

Examination completed March 22, 1887, by Geo. E. Gage and Chas. E. Cooper.

Vice-President — S. W. Cobb.

Trustees — N. S. Huntington, S. W. Cobb, H. Hitchcock, J. S. Bridgeman, George Hitchcock, Charles Benton, H. V. Partridge, H. H. Holt, F. Chase, M. H. Barstow, Chas. P. Chase, F. W. Davison, and E. R. Ruggles.

Treasurer's bond \$55,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 18, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$1,800.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing ; as surety, \$3,000, by unanimous consent of trustees.

Loans and investments are made by N. S. Huntington, H. Hitchcock, and F. Chase.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,932 ; increase since last examination by Bank Commissioners, 104.

Amount of deposits, \$778,833.56 ; increase since last examination, \$22,786.94.

Number of single loans of \$1,000 or less to separate parties in the State, 28.

Total amount of loans, \$419,271.27.

Total amount of stocks and bonds, \$401,834.52.

Largest amount loaned to any individual, corporation, or company, \$9,000.

Amount of assets with interest unpaid for over six months, \$35,645.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$109,168.47.

Total amount loaned or invested in New England, \$109,168.47.

Total amount loaned or invested out of New England, \$758,246.07.

Total amount loaned or invested drawing 5 per cent interest, \$20,000.

Total amount loaned or invested drawing 6 per cent interest, \$179,081.27.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$21,500.

Total amount loaned or invested drawing 7 per cent interest, \$462,750.

Total amount loaned or invested drawing 8 per cent interest, \$100,450.

Total amount loaned or invested drawing $8\frac{1}{2}$ per cent interest, \$1,000.

Total amount loaned or invested drawing 9 per cent interest, \$3,000.

Total amount loaned or invested drawing 10 per cent interest, \$38,346.07.

Total amount loaned or invested drawing 12 per cent interest, \$1,100.

Amount invested from which no income has been received during the year, \$14,000.

Dividends for the year ending Dec. 31, 1886: January, 1886, 2 per cent, \$13,938.62; July, 1886, 2 per cent, \$14,707.50.

Extra dividend of $4\frac{1}{2}$ per cent, amounting to \$31,632.92, declared January, 1886.

Total expense of institution for the twelve months ending March 22, 1887, \$2,179.17.

Amount charged off as losses since last examination, \$200.

Amount of deposits received since last examination, \$120,800.80.

Amount of dividends declared since last examination, \$29,700.66.

Amount paid on account of deposits since last examination, \$127,714.52.

SCHEDULE OF BONDS AND STOCKS OF THE DARTMOUTH SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Boonville Bridge, 7s.....	\$5,750.00	\$5,000.00	\$4,500.00
St. Louis & San Francisco, 6s.....	5,800.00	5,000.00	5,000.00
St. Louis & San Francisco, 7s.....	13,585.00	13,000.00	13,000.00
St. Louis & San Francisco, general mortgage, 7s.....	11,050.00	10,000.00	10,000.00
Denver & Rio Grande Western, 6s...	8,690.00	11,000.00	7,825.00
Columbus, Hocking Valley & Toledo, 5s.....	15,900.00	20,000.00	18,200.00
Long Island, 7s.....	18,300.00	15,000.00	14,710.87
Indianapolis, Decatur & Springfield, 7s.....	21,000.00	20,000.00	20,000.00
Indianapolis, Decatur & Springfield, 6s.....	5,250.00	5,000.00	5,000.00
Louisville & Nashville, 6s.....	5,350.00	5,000.00	4,798.33
Ohio & West Virginia, 7s.....	16,800.00	15,000.00	15,000.00
St. Paul & Sioux City, 6s.....	20,320.00	16,000.00	16,000.00
Missouri, Kansas & Texas, 7s.....	16,500.00	15,000.00	15,000.00
Atchison, Topeka & Santa Fé, 7s....	14,880.00	12,000.00	8,800.00
Atchison, Topeka & Santa Fé, 7s...	7,865.00	6,500.00	4,750.00
Tebo & Neosho, 7s.....	16,520.00	14,000.00	13,130.00
Pueblo & Arkansas Valley, 7s.....	7,440.00	6,000.00	5,400.00
Pacific R. R. of Missouri, 7s.....	4,360.00	4,000.00	4,000.00
Pacific R. R. of Missouri, 8s.....	5,400.00	5,000.00	5,000.00
St. Louis & Iron Mountain, 7s.....	5,550.00	5,000.00	5,000.00
Indianapolis, Decatur & Springfield, 6s.....	5,320.00	14,000.00	4,200.00
Indiana, Bloomington & West., 6s...	8,640.00	9,000.00	9,000.00
Denver, South Park & Pacific, 7s...	7,600.00	10,000.00	10,000.00
Georgia, Midland & Gulf, 6s.....	7,600.00	8,000.00	7,632.05
	\$255,470.00	\$248,500.00	\$225,946.25
COUNTY.			
Arapahoe, Col., 8s.....	\$11,373.00	\$11,150.00	\$10,470.00
Osage, Kan., 7s....	1,030.00	1,000.00	1,000.00
Butler, Neb., 10s.....	5,500.00	5,000.00	4,900.00
Gilpin, Col., 8s.....	8,400.00	8,000.00	6,065.00
Douglas, Neb., 8s.....	7,000.00	7,000.00	7,000.00
Shawnee, Kan., 7s.....	4,120.00	4,000.00	3,240.00
Brown, Kan., 7s.....	9,450.00	9,000.00	8,775.00
Lincoln, Neb., 10s.....	2,100.00	2,000.00	2,000.00
Uinta, Wyo., 6s.....	5,150.00	5,000.00	5,000.00
Cloud, Kan., 8s.....	9,600.00	8,000.00	8,000.00
	\$63,723.00	\$60,150.00	\$56,450.00
CITY.			
Davenport, Io., 6s.....	\$9,270.00	\$9,000.00	\$9,000.00
Erie, Penn., 7s.....	6,300.00	6,000.00	5,645.00
Pueblo, Col., 8s.....	5,250.00	5,000.00	4,500.00
Sauk Rapids, Minn., 10s....	1,575.00	1,500.00	1,500.00
Idaho Springs, Col., 8s.....	5,000.00	5,000.00	5,000.00
Galveston, Tex., 8s....	1,500.00	1,500.00	1,500.00
Omaha, Neb., 10s.....	997.00	950.00	950.00
	\$29,892.00	\$28,950.00	\$28,095.00
SCHOOL DISTRICT.			
Swift County, No. 23, Minn., 12s.....	\$500.00	\$500.00	\$500.00
“ “ “ 6, “ 10s.....	6,000.00	6,000.00	6,000.00
<i>Amount carried forward.....</i>	\$6,500.00	\$6,500.00	\$6,500.00

SCHEDULE OF BONDS AND STOCKS OF THE DARTMOUTH SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT. — <i>Continued.</i>			
<i>Amount brought forward</i>	\$6,500.00	\$6,500.00	\$6,500.00
Swift County, No. 28, Minn., 12s.....	600.00	600.00	600.00
“ “ “ 34, “ 10s.....	500.00	500.00	500.00
“ “ “ 21, “ 10s.....	400.00	400.00	400.00
Wright County, No. 79, Minn., 10s...	1,000.00	1,000.00	1,000.00
Chippewa County, No. 30, Minn., 10s	700.00	700.00	700.00
Lake “ “ 8, Dak., 10s	100.00	100.00	100.00
Traverse “ “ 1, Minn., 10s	400.00	400.00	400.00
Moody “ “ 38, Dak., 10s	450.00	450.00	450.00
Renville “ “ 64, Minn., 10s	2,500.00	2,500.00	2,500.00
Minnehaha “ “ 43, Dak., 10s	500.00	500.00	500.00
Minnehaha “ “ 64, Dak., 10s	450.00	450.00	450.00
Lake “ “ 14, Dak., 10s	125.00	125.00	125.00
Nobles “ “ 17, Minn., 10s	1,500.00	1,500.00	1,500.00
Lincoln “ “ 62, Dak., 10s	600.00	600.00	600.00
Granite Falls (Indp.), Minn., 8½s....	1,000.00	1,000.00	1,000.00
Emerson Township, Neb., 8s.....	5,000.00	5,000.00	5,000.00
Moorhead, Clay Co., Minn., 7s.....	3,000.00	3,000.00	3,000.00
Big Stone, No. 1, Minn., 7s.....	5,500.00	5,500.00	5,500.00
Murray County, No. 12, Minn., 10s...	500.00	500.00	500.00
Brookings, No. 7, Dak., 10s.....	1,400.00	1,400.00	1,400.00
Moody and Lake, No. 40, Dak., 10s...	384.00	384.00	384.00
Pembina, No. 1, Dak., 7s.....	5,000.00	5,000.00	5,000.00
	\$38,109.00	\$38,109.00	\$38,109.00
MISCELLANEOUS.			
Salina Water-works, Kan., 6s.....	\$5,250.00	\$5,000.00	\$4,950.00
Arkansas Valley Town Co., Kan., 8s	150.00	300.00	150.00
Colorado Coal and Iron Co., Col., 6s	10,000.00	10,000.00	8,000.00
National Mining and Industrial Ex- position, Col., 8s.....	5,500.00	11,000.00	5,000.00
Iowa town warrants, Io., 10s.....	1,447.07	1,447.07	1,447.07
	\$22,347.07	\$27,747.07	\$19,547.07
STOCKS.			
BANK.			
Dartmouth National.....	\$19,250.00	\$15,400.00	\$15,400.00
RAILROAD.			
Northern.....	\$3,212.50	\$2,500.00	\$2,500.00
Atchison, Topeka & Santa Fé.....	636.00	600.00	400.00
	\$3,848.50	\$3,100.00	\$2,900.00

DOVER FIVE-CENT SAVINGS BANK.—DOVER.

JOHN J. HANSON, *President.*CALVIN HALE, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$178,444.88		\$178,444.88
Guaranty fund.....	4,205.86		4,205.86
Surplus.....	8,435.00		8,435.00
Premium on stocks and bonds.....	1,621.00		
	<u>\$192,706.74</u>		<u>\$191,085.74</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$19,605.00	\$19,605.00	\$19,605.00
Loans secured by local real estate.	44,252.00	44,252.00	44,252.00
Loans on personal security.....	8,310.28	8,310.28	8,310.28
Loans on collateral security.....	11,770.00	11,770.00	11,770.00
Railroad bonds.....	77,085.00	81,000.00	76,797.00
Bank stock.....	15,625.00	12,500.00	14,292.00
Balance on deposit in Dover Na- tional Bank.....	1,649.61	1,649.61	1,649.61
Real estate acquired or held by foreclosure.....	14,409.85	14,409.85	14,409.85
	<u>\$192,706.74</u>	<u>\$193,496.74</u>	<u>\$191,085.74</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$9,135.53
Deduct expenses for 1886	\$973.95
Deduct state tax for 1886	1,657.28
	<u>2,631.23</u>
Net profits to be accounted for	\$6,504.30
Dividend of 2 per cent, April, 1886	\$3,190.04
Dividend of 2 per cent, Oct., 1886	3,406.75
Carried to guaranty fund	565.00
	<u>\$7,161.79</u>
From surplus account	657.49
	<u>\$6,504.30</u>

Guaranty fund Jan. 1, 1886	\$8,435.00	
Other undivided profits Jan. 1, 1886	2,106.12	
Total surplus profits Jan. 1, 1886	—————	\$10,541.12
Guaranty fund Jan. 1, 1887	\$9,000.00	
Other undivided profits Jan. 1, 1887	1,448.63	
Total surplus profits Jan. 1, 1887	—————	10,448.63
Decrease for the year 1886		\$92.49

Surplus profits — Jan. 1, 1883, \$10,867.84; Jan. 1, 1884, \$11,-021.97; Jan. 1, 1885, \$11,005.04; Jan. 1, 1886, \$10,541.12; Jan. 1, 1887, \$10,448.63.

Incorporated 1856. Charter perpetual.

Examination completed Oct. 1, 1886, by George E. Gage.

Vice-President — Eli V. Brewster.

Trustees — Calvin Hale, Eli V. Brewster, Wm. A. Morrill, Ephraim H. Whitehouse, Wm. H. Vickery, John J. Hanson, Isaac F. Abbott, Edmund M. Swan, Henry A. Worthern, James F. Seavey, Dennis Cash.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, July 20, 1886. Sureties of bond are able to respond. Bond deposited with president of the bank for safe-keeping.

Annual compensation of treasurer, \$900.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$10,000, by unanimous consent of trustees.

Loans and investments are made by committee of trustees; meet as occasion requires.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,732; decrease since last examination by Bank Commissioners, 2.

Amount of deposits, \$178,444.88; increase since last examination, \$9,663.26.

Number of single loans of \$1,000 or less to separate parties in the State, 51.

Total amount of loans, \$83,937.28.

Total amount of stocks and bonds, \$91,089.

Largest amount loaned to any individual, corporation, or company, \$8,000.

Amount of assets with interest unpaid for over six months, \$7,500.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$92,891.74.

Total amount loaned or invested in New England, \$97,891.74.

Total amount loaned or invested out of New England, \$91,544.39.
 Total amount loaned or invested drawing 4 per cent interest, \$5,000.
 Total amount loaned or invested drawing 5 per cent interest, \$5,000.
 Total amount loaned or invested drawing 6 per cent interest, \$111,229.28.
 Total amount loaned or invested drawing 6½ per cent interest, \$700.
 Total amount loaned or invested drawing 7 per cent interest, \$40,605.
 Total amount loaned or invested drawing 8 per cent interest, \$5,800.
 Amount invested from which no income has been received during the year, \$9,103.
 Dividends for the year ending Dec. 31, 1886: April, 1886, 2 per cent, \$3,190.04; October, 1886, 2 per cent, \$3,406.75.
 Total expense of institution for the twelve months ending Oct. 1, 1886, \$970.25.
 Amount of deposits received since last examination, \$33,858.62.
 Amount of dividends declared since last examination, \$6,470.13.
 Amount paid on account of deposits since last examination, \$30,956.38.

SCHEDULE OF BONDS AND STOCKS OF THE DOVER FIVE-CENT SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Atlantic & Pacific, 6s.....	\$8,600.00	\$10,000.00	\$10,419.00
Atchison, Jewell Co. & Western, 6s.	3,180.00	3,000.00	3,025.00
Atchison, Colorado & Pacific, 6s....	8,480.00	8,000.00	8,030.00
Sonora, 7s.....	5,150.00	5,000.00	5,000.00
Consolidated of Vermont, 5s.....	4,250.00	5,000.00	3,000.00
Mexican Central, 4s.....	2,975.00	5,000.00	4,288.00
Missouri, Kansas & Texas, 7s.....	5,500.00	5,000.00	5,454.00
Oregon Short Line, 6s.....	5,150.00	5,000.00	4,881.00
Florence, Eldorado & Walnut Valley, 7s.	5,600.00	5,000.00	4,793.75
Kansas Pacific, 6s.....	11,500.00	10,000.00	9,577.00
Oregon Improvement, 6s.....	9,300.00	10,000.00	9,226.25
Texas Pacific, 6s.....	7,400.00	10,000.00	9,103.00
	<u>\$77,085.00</u>	<u>\$81,000.00</u>	<u>\$76,797.00</u>
STOCKS.			
Dover National Bank.....	\$15,625.00	\$12,500.00	\$14,292.00

EPPING SAVINGS BANK.—EPPING.

JOSEPH C. BURLEY, *Pres.*NATH'L G. PLUMER, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$64,635.80		\$64,635.80
Guaranty fund.....	1,128.24		1,128.24
Surplus.....	1,805.89		1,805.89
	\$67,569.93		\$67,569.93

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages....	\$14,300.00	\$14,300.00	\$14,300.00
Loans secured by local real estate.	30,256.61	30,256.61	30,256.61
Loans on personal security.....	10,273.24	10,273.24	10,273.24
Loans on collateral security.....	1,825.00	1,825.00	1,825.00
Railroad bonds.....	8,327.67	9,000.00	8,260.00
Bank stock.....	1,100.00	1,000.00	1,167.67
Balance on deposit in Amoskeag National Bank.....	719.39	719.39	719.39
Real estate acquired or held by foreclosure.....	200.00	200.00	200.00
Bank fixtures.....	384.08	384.08	384.08
Cash on hand.....	183.94	183.94	183.94
	\$67,569.93	\$68,142.26	\$67,569.93

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$2,928.07
Deduct expenses for 1886	\$183.88
Deduct state tax for 1886	627.71
	811.59
Net profits to be accounted for	\$2,116.48
Dividend of 4 per cent, 1886	\$2,353.42
Less dividends declared, not earned	236.94
Net profits (as above) accounted for	\$2,116.48
Guaranty fund Jan. 1, 1886	\$928.14
Other undivided profits Jan. 1, 1886	1,206.43
Total surplus profits Jan. 1, 1886	\$2,134.57

Guaranty fund Jan. 1, 1887	\$828.24
Other undivided profits Jan. 1, 1887	682.95
Total surplus profits Jan. 1, 1887	<u>1,511.19</u>
Decrease for the year 1886	\$623.38
Surplus profits— Jan. 1, 1885, \$1,842.92 ; Jan. 1, 1886, \$2,134.57 ; Jan. 1, 1887, \$1,511.19.	

Incorporated 1873. Charter perpetual.

Examination completed April 26, 1887, by George E. Gage.

Trustees — William R. Bunker, Joseph N. Cilley, James H. Bartlett, Alfred T. Rundlett, Walter H. Stickney, Asa S. Robie, Hosea B. Burnham, John Leddy, Charles E. Folsom, George S. Rundlett, Benjamin F. Lang, Caleb F. Edgerly.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 10, 1886. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$100.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,524 ; as surety, \$1,025, by unanimous consent of trustees.

Loans and investments are made by investing committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 280 ; decrease since last examination by Bank Commissioners, 4.

Amount of deposits, \$64,635.80 ; decrease since last examination, \$853.22.

Number of single loans of \$1,000 or less to separate parties in the State, 102.

Total amount of loans, \$56,654.85.

Total amount of stocks and bonds, \$9,427.67.

Largest amount loaned to any individual, corporation, or company, \$3,046.30.

Amount of assets with interest unpaid for over six months, \$17,463.83.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$43,366.69.

Total amount loaned or invested in New England, \$44,366.69.

Total amount loaned or invested out of New England, \$22,300.

Total amount loaned or invested drawing 3 per cent interest, \$3,000.

Total amount loaned or invested drawing 4 per cent interest, \$4,000.

Total amount loaned or invested drawing 6 per cent interest,
\$43,354.85.

Total amount loaned or invested drawing 6½ per cent interest,
\$6,600.

Total amount loaned or invested drawing 7 per cent interest,
\$8,700.

Total amount loaned or invested drawing 8 per cent interest,
\$1,000.

Dividends for the year ending Dec. 31, 1886: 4 per cent, \$2,353.42.

Total expense of institution for the twelve months ending April 26,
1887, \$179.43.

Amount of deposits received since last examination, \$7,777.80.

Amount of dividends declared since last examination, \$2,353.42.

Amount paid on account of deposits since last examination,
\$10,984.44.

SCHEDULE OF BONDS AND STOCKS OF THE EPPING SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Leavenworth, Topeka & South-western, 4s.....	\$3,197.67	\$4,000.00	\$3,250.00
New York & New England, 3s.....	2,820.00	3,000.00	3,009.00
Sonora Railway Co., 7s.....	1,030.00	1,000.00	1,063.50
Eastern (of Massachusetts), 6s.....	1,280.00	1,000.00	937.50
	\$8,327.67	\$9,000.00	\$8,260.00
STOCKS.			
Newmarket National Bank.....	\$1,100.00	\$1,000.00	\$1,167.67

FARMERS' SAVINGS BANK. — PITTSFIELD.

IRA N. BLAKE, *President.*JOHN A. GOSS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$39,961.11		\$39,961.11
Guaranty fund.....	249.00		249.00
Surplus.....	766.10		766.10
Premium on stocks and bonds.....	250.00		
	\$41,226.21		\$40,976.21

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$18,085.00	\$18,085.00	\$18,085.00
Loans secured by local real estate.	5,710.00	5,710.00	5,710.00
Loans on personal security.....	8,447.57	8,447.57	8,447.57
Loans on collateral security.....	6,600.00	6,600.00	6,600.00
Bank stock (Pittsfield Nat. Bank)...	1,300.00	1,000.00	1,050.00
Miscellaneous bonds (New Hamp- shire Trust Co. debentures).....	500.00	500.00	500.00
Balance on deposit in Pittsfield National Bank.	583.64	583.64	583.64
	\$41,226.21	\$40,926.21	\$40,976.21

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$1,812.10
Deduct expenses for 1886	\$9.45
Deduct state tax for 1886	294.58
	<u>304.03</u>
Net profits to be accounted for	\$1,508.07
Dividend of 4 per cent, 1886	\$1,135.22
Carried to guaranty fund	150.00
Balance of profits for 1886	222.85
Net profits (as above) accounted for	\$1,508.07
Guaranty fund Jan. 1, 1886	\$99.00
Other undivided profits Jan. 1, 1886	2.32
Total surplus profits Jan. 1, 1886	<u>\$101.32</u>

Guaranty fund Jan. 1, 1887	\$249.00	
Other undivided profits Jan. 1, 1887	225.17	
Total surplus profits Jan. 1, 1887	<hr/>	\$474.17

Increase for the year 1886 \$372.85

Surplus profits — Jan. 1, 1885, \$26; Jan. 1, 1886, \$101.32;
Jan. 1, 1887, \$474.17.

Incorporated 1883. Charter perpetual.

Examination completed April 28, 1887, by George E. Gage.

Trustees — Ira N. Blake, James Griffin, E. A. Libby, Geo. N. Foss, Charles H. Carpenter, T. H. Thorndike, True H. Maxfield, John J. French, Chas. M. Bailey, John N. Goss, Nathaniel S. Nutter.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Nov. 24, 1883. Sureties of bond are able to respond. Bond deposited with president of the bank for safe-keeping.

Annual compensation of treasurer, \$50.

Officers have taken their official oath.

Indebtedness of trustees as surety, \$500, by unanimous consent of trustees.

Loans made by investment committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 160; increase since last examination by Bank Commissioners, 56.

Amount of deposits, \$39,961.11; increase since last examination, \$10,307.92.

Number of single loans of \$1,000 or less to separate parties in the State, 36.

Total amount of loans, \$38,842.57.

Total amount of stocks and bonds, \$1,550.

Largest amount loaned to any individual, corporation, or company, \$3,000.

Amount of assets with interest unpaid for over six months, \$260.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$22,307.57.

Total amount loaned or invested in New England, \$22,307.57.

Total amount loaned or invested out of New England, \$18,085.

Total amount loaned or invested drawing 6 per cent interest, \$29,757.57.

Total amount loaned or invested drawing 6½ per cent interest, \$2,000.

Total amount loaned or invested drawing 7 per cent interest, \$6,900.

Total amount loaned or invested drawing 8 per cent interest,
\$1,685.

Dividends for the year ending Dec. 31, 1886: Jan. 1, 1887,
\$1,135.22.

Total expense of institution for the twelve months ending May 1,
1887, \$249.65.

Amount of deposits received since last examination, \$19,048.76.

Amount of dividends declared since last examination, \$1,135.22.

Amount paid on account of deposits since last examination,
\$9,876.06.

FARMINGTON SAVINGS BANK. — FARMINGTON.

HOSEA B. EDGERLY, *Pres.*CHARLES W. TAPLEY, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$374,109.87		\$374,109.87
Guaranty fund	13,000.00		13,000.00
Surplus	17,076.75		17,076.75
Premium on stocks and bonds.....	6,565.00		
	<u>\$410,751.62</u>		<u>\$404,186.62</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$268,671.38	\$268,671.38	\$268,671.38
Loans secured by local real estate..	59,574.00	59,574.00	59,574.00
Loans on personal security.....	11,038.93	11,038.93	11,038.93
Loans on collateral security.....	1,514.25	1,514.25	1,514.25
County, city, town, and district bonds.....	1,125.00	1,100.00	1,100.00
Bank stock.....	47,120.00	40,800.00	40,800.00
Miscellaneous bonds.....	8,220.00	8,000.00	8,000.00
Miscellaneous stocks.....	7,000.00	7,000.00	7,000.00
Balance on deposit in Farmington National Bank.....	2,488.06	2,488.06	2,488.06
Real estate purchased for the bank (bank building).....	4,000.00	4,000.00	4,000.00
	<u>\$410,751.62</u>	<u>\$404,186.62</u>	<u>\$404,186.62</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$23,498.54
Deduct expenses for 1886	\$1,161.26
Deduct state tax for 1886	3,371.04
Deduct items charged off	350.00
	<u>4,882.30</u>

Net profits to be accounted for \$18,616.24

Dividend of 4 per cent, 1886	\$13,704.96
Carried to guaranty fund	2,000.00
Balance of profits for 1886	2,911.28
Net profits (as above) accounted for	<u>\$18,616.24</u>

Guaranty fund Jan. 1, 1886	\$13,000.00	
Other undivided profits Jan. 1, 1886	10,942.17	
Total surplus profits Jan. 1, 1886	—————	\$23,942.17
Guaranty fund Jan. 1, 1887	\$15,000.00	
Other undivided profits Jan. 1, 1887	13,853.45	
Total surplus profits Jan. 1, 1887	—————	28,853.45
<hr/>		
Increase for the year 1886		\$4,911.28

Surplus profits — Jan. 1, 1883, \$6,171.17 ; Jan. 1, 1884, \$16,293.29 ; Jan. 1, 1885, \$18,803.21 ; Jan. 1, 1886, \$23,942.17 ; Jan. 1, 1887, \$28,853.45.

Incorporated 1868. Charter perpetual.

Examination completed Nov. 30, 1886, by George E. Gage.

Vice-President — John Tuttle.

Trustees — H. B. Edgerly, John Tuttle, Charles W. Wingate, George N. Eastman, Hiram Barker, Alonzo Nute, Levi Pearl, J. R. Hayes, J. F. Cloutman, J. H. Barker, Josiah B. Edgerly, W. W. Hayes, D. T. Parker, E. P. Nute, James B. Edgerly, Charles W. Talpey.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, May 25, 1885. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$1,000.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$7,615; as surety, \$3,425, by unanimous consent of trustees.

Loans and investments are made by committee of investment.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,170 ; increase since last examination by Bank Commissioners, 145.

Amount of deposits, \$374,109.87 ; increase since last examination, \$73,733.44.

Number of single loans of \$1,000 or less to separate parties in the State, 91.

Total amount of loans, \$340,798.56.

Total amount of stocks and bonds, \$56,900.

Largest amount loaned to any individual, corporation, or company, \$6,400.

No assets with interest unpaid for over six months.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$117,415.24.

Total amount loaned or invested in New England, \$117,415.24.

Total amount loaned or invested out of New England, \$286,771.38.
Total amount loaned or invested drawing 6 per cent interest,
\$68,127.18.
Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$2,500.
Total amount loaned or invested drawing 7 per cent interest,
\$111,550.
Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$2,500.
Total amount loaned or invested drawing 8 per cent interest,
\$158,228.38.
Total amount loaned or invested drawing 9 per cent interest,
\$12,550.
Total amount loaned or invested drawing 10 per cent interest,
\$32,993.
Total amount loaned or invested drawing 12 per cent interest,
\$9,250.
Dividends for the year ending Dec. 31, 1886: 4 per cent, 1886,
\$13,704.96.
Total expense of institution for the twelve months ending Nov. 30,
1886, \$1,190.19.
Amount charged off as losses since last examination, \$350.
Amount of other taxes, \$43.56.
Amount of deposits received since last examination, \$115,989.38.
Amount of dividends declared since last examination, \$20,932.79.
Amount paid on account of deposits since last examination,
\$63,188.73.

SCHEDULE OF BONDS AND STOCKS OF THE FARMINGTON SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT.			
No. 29, Butler County, Neb., 7s.....	\$600.00	\$600.00	\$600.00
No. 3, McPherson County, Kan., 6½s.	525.00	500.00	500.00
	\$1,125.00	\$1,100.00	\$1,100.00
MISCELLANEOUS.			
Adrian Water-works, Mich., 7s.....	\$2,100.00	\$2,000.00	\$2,000.00
Ottumwa " Io., 6s.....	6,120.00	6,000.00	6,000.00
	\$8,220.00	\$8,000.00	\$8,000.00
STOCKS.			
BANK.			
Farmington National, Farmington.	\$44,620.00	\$38,800.00	\$38,800.00
Howard National, Kan	2,500.00	2,000.00	2,000.00
	\$47,120.00	\$40,800.00	\$40,800.00
MISCELLANEOUS.			
Gossard Investment Co., Kan. City.	\$6,000.00	\$6,000.00	\$6,000.00
Farmers' Loan & Trust Co., An- thony, Kan.....	1,000.00	1,000.00	1,000.00
	\$7,000.00	\$7,000.00	\$7,000.00

FITZWILLIAM SAVINGS BANK.—FITZWILLIAM.

AMOS J. BLAKE, *President*. STEPHEN BATCHELLER, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$148,456.44		\$148,456.44
Guaranty fund.....	3,000.00		3,000.00
Surplus.	4,678.47		4,678.47
Premium on stocks and bonds.....	3,782.83		
	\$159,917.74		\$156,134.91

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$61,566.32	\$61,566.32	\$61,566.32
Loans secured by local real estate.	31,202.99	31,202.99	31,202.99
Loans on personal security.....	8,492.78	8,492.78	8,492.78
Loans on collateral security.....	1,650.00	1,650.00	1,650.00
County, city, town, and district bonds.....	7,400.00	7,300.00	7,727.00
Railroad bonds	5,500.00	5,000.00	4,934.17
Bank stock.....	8,845.00	6,900.00	7,851.00
Miscellaneous bonds.....	14,800.00	14,800.00	14,800.00
Miscellaneous stocks.....	16,150.00	13,500.00	13,600.00
Balance on deposit in nat. banks...	3,961.65	3,961.65	3,961.65
Cash on hand.....	349.00	349.00	349.00
	\$159,917.74	\$154,722.74	\$156,134.91

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886		\$9,116.33
Deduct expenses for 1886	\$605.14	
Deduct state tax for 1886	1,432.18	
Deduct items charged off	253.98	
		2,291.30
Net profits to be accounted for		\$6,825.03
Dividend of 2½ per cent, January, 1886	\$3,351.36	
Dividend of 2 per cent, July, 1886 . .	2,840.29	
Carried to guaranty fund	500.00	
Balance of profits for 1886	133.38	
Net profits (as above) accounted for .		\$6,825.03

Guaranty fund Jan. 1, 1886 . .	\$2,000.00	
Other undivided profits Jan. 1, 1886 .	5,910.86	
Total surplus profits Jan. 1, 1886 .	<u> </u>	\$7,910.86
Guaranty fund Jan. 1, 1887 . .	\$2,500.00	
Other undivided profits Jan. 1, 1887 .	6,043.96	
Total surplus profits Jan. 1, 1887 .	<u> </u>	8,543.96
Increase for the year 1886		<u> </u> \$633.10

Surplus profits — Jan. 1, 1883, \$3,716.27 ; Jan. 1, 1884, \$4,858.35 ; Jan. 1, 1885, \$6,118.15 ; Jan. 1, 1886, \$7,656.58 ; Jan. 1, 1887, \$8,543.96.

Incorporated 1871. Charter perpetual.

Examination completed Feb. 8, 1887, by Charles E. Cooper.

Vice-President — Josiah E. Carter.

Trustees — John M. Parker, Kimball D. Webster, Aaron R. Gleason, Samuel Kendall, Elbridge Cummings, Wright Whitcomb, Charles Byam, Edward N. Bowen, Chauncy Davis, Melvin Wilson, Edmund Bemis, Herbert E. Wetherbee, Reuben L. Angier.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 14, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerks — None.

Annual compensation of treasurer, \$500.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,800 ; as surety, \$2,300, by unanimous consent of trustees.

Loans and investments are made by financial committee ; meet when business requires.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 484 ; same as last year.

Amount of deposits, \$148,456.44 ; increase since last examination, \$4,681.49.

Amount of bank's assets in Keene for safe-keeping, \$21,500.

Number of single loans of \$1,000 or less to separate parties in the State, 134.

Total amount of loans, \$102,912.09.

Total amount of stocks and bonds, \$48,912.17.

Largest amount loaned to any individual, corporation, or company, \$4,800.

Amount of assets with interest unpaid for over six months, \$4,725.72.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$59,556.42.
Total amount loaned or invested in New England, \$59,556.42.
Total amount loaned or invested out of New England, \$95,593.32.
Total amount loaned or invested drawing 6 per cent interest,
\$65,644.77.
Total amount loaned or invested drawing 7 per cent interest,
\$49,193.50.
Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$1,000.
Total amount loaned or invested drawing 8 per cent interest,
\$34,573.62.
Amount invested from which no income has been received during
the year, nothing.
Dividends for the year ending Dec. 31, 1886: January, 1886, $2\frac{1}{2}$
per cent, \$3,351.36; July, 1886, 2 per cent, \$2,840.29.
Total expense of institution for the twelve months ending Feb. 8,
1887, \$605.14.
Amount charged off as losses since last examination, nothing.
Amount of other taxes, \$4.44.
Amount of deposits received since last examination, \$19,668.20.
Amount of dividends declared since last examination, \$6,517.90.
Amount paid on account of deposits since last examination,
\$21,564.61.

SCHEDULE OF BONDS AND STOCKS OF THE FITZWILLIAM SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Cheshire, 6s	\$5,500.00	\$5,000.00	\$4,934.17
CITY.			
Evansville, Ind., 7s.....	\$1,500.00	\$2,000.00	\$2,110.00
Cincinnati, O., 7s.....	2,600.00	2,000.00	2,170.00
	\$4,100.00	\$4,000.00	\$4,280.00
SCHOOL DISTRICT.			
York County, Neb., 7s.....	\$1,000.00	\$1,000.00	\$1,060.00
Bethlehem (Independent), Io., 7s....	500.00	500.00	530.00
Nira (Independent), Io., 7s.....	800.00	800.00	\$32.00
Shenandoah (Independent), Io., 6s..	1,000.00	1,000.00	1,025.00
	\$3,300.00	\$3,300.00	\$3,447.00
MISCELLANEOUS.			
Iowa Loan and Trust Co. debent., 6s	\$8,800.00	\$8,800.00	\$8,800.00
Lombard Investment Co. " 6s	4,000.00	4,000.00	4,000.00
Texas Loan Agency, 8s	2,000.00	2,000.00	2,000.00
	\$14,800.00	\$14,800.00	\$14,800.00
STOCKS.			
BANK.			
Keene National, Keene.....	\$1,280.00	\$800.00	\$1,000.00
Ashuelot National, Keene.....	3,640.00	2,600.00	3,251.00
Lancaster National, Lancaster	2,825.00	2,500.00	2,500.00
Winchester National, Winchester..	1,100.00	1,000.00	1,100.00
	\$8,845.00	\$6,900.00	\$7,851.00
MISCELLANEOUS.			
Iowa Loan and Trust Co.....	\$6,250.00	\$5,000.00	\$5,100.00
Muscatine Mortgage and Trust Co..	4,800.00	4,000.00	4,000.00
Nebraska Loan and Trust Co.....	3,000.00	2,500.00	2,500.00
New Hampshire Trust Co.....	2,100.00	2,000.00	2,000.00
	\$16,150.00	\$13,500.00	\$13,600.00

FRANCESTOWN SAVINGS BANK. — FRANCESTOWN.

HIRAM PATCH, *President.*S. D. DOWNES, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$97,385.73		\$97,385.73
Guaranty fund.....	2,553.93		2,553.93
Surplus.....	731.20		731.20
Premium on stocks and bonds	757.50		
	\$101,428.36		\$100,670.86

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$17,212.50	\$17,212.50	\$17,212.50
Loans secured by local real estate.	41,982.33	41,982.33	41,982.33
Loans on personal security.....	6,345.90	6,345.90	6,345.90
Loans on collateral security.....	5,096.41	5,096.41	5,096.41
County, city, town, and district bonds.	8,450.00	8,200.00	8,350.00
Bank stock.....	10,400.00	9,500.00	10,442.50
Miscellaneous stocks.....	8,500.00	8,000.00	7,800.00
Balance on deposit in national bank	370.96	370.96	370.96
Balance on deposit in International Trust Co.....	1,662.45	1,662.45	1,662.45
Real estate acquired or held by foreclosure.....	694.36	694.36	694.36
Bank fixtures	87.50	87.50	87.50
Cash on hand.....	625.95	625.95	625.95
	\$101,428.36	\$99,778.36	\$100,670.86

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$6,420.87
Deduct expenses for 1886	\$600.56
Deduct state tax for 1886	831.60
	<u>1,432.16</u>
Net profits to be accounted for	\$4,988.71
Dividend of 5 per cent, Dec. 31, 1886	\$4,223.67
Interest paid in 1886	105.45
Carried to guaranty fund	500.00
Balance of profits for 1886	159.59
Net profits (as above) accounted for	<u>\$4,988.71</u>

Guaranty fund Jan. 1, 1886	\$2,053.93	
Other undivided profits Jan. 1, 1886	216.78	
Total surplus profits Jan. 1, 1886	—————	\$2,270.71
Guaranty fund Jan. 1, 1887	\$2,553.93	
Other undivided profits Jan. 1, 1887	376.37	
Total surplus profits Jan. 1, 1887	—————	2,930.30
		<hr/>
Increase for the year 1886		\$659.59

Surplus profits — Jan. 1, 1883, \$1,831.28; Jan. 1, 1884, \$1,679.83; Jan. 1, 1885, \$1,766.34; Jan. 1, 1886, \$2,270.71; Jan. 1, 1887, \$2,930.30.

Incorporated 1868. Charter perpetual.

Examination completed Jan. 25, 1887, by Charles E. Cooper.

Vice-President — None.

Trustees — Hiram Patch, Samuel B. Hodge, Charles A. Vose, Augustus H. Bixby, Neil McLane, Frank B. Starrett, Samuel D. Downes.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 20, 1883. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerks — None.

Annual compensation of treasurer, \$500.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing; as surety, \$160, by unanimous consent of trustees.

Loans and investments are made by a committee chosen for that purpose.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 357; increase since last examination by Bank Commissioners, 29.

Amount of deposits, \$97,385.73; increase since last examination, \$11,357.12.

Amount of bank's assets in Boston for safe-keeping, \$18,792.50.

Number of single loans of \$1,000 or less to separate parties in the State, 119.

Total amount of loans, \$71,331.50.

Total amount of stocks and bonds, \$26,592.50.

Largest amount loaned to any individual, corporation, or company, \$2,500.

Amount of assets with interest unpaid for over six months, \$3,820.85.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$59,309.

Total amount loaned or invested in New England, \$59,309.

Total amount loaned or invested out of New England, \$38,615.

Total amount loaned or invested drawing 5 per cent interest, \$700.

Total amount loaned or invested drawing 6 per cent interest, \$33,433.94.

Total amount loaned or invested drawing 7 per cent interest, \$37,547.56.

Total amount loaned or invested drawing $7\frac{3}{16}$ per cent interest, \$3,300.

Total amount loaned or invested drawing 8 per cent interest, \$20,050.

Total amount loaned or invested drawing 9 per cent interest, \$500.

Total amount loaned or invested drawing 10 per cent interest, \$500.

Amount invested from which no income has been received during the year, \$1,000.

Dividends for the year ending Dec. 31, 1886: December, 1886, \$4,223.67.

No extra dividend.

Total expense of institution for the twelve months ending Jan. 25, 1887, \$600.56.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, nothing.

Deposits received since last examination, \$20,276.46.

Amount paid on account of deposits since last examination, 15,275.14.

Amount of dividends declared since last examination, \$6,355.75.

SCHEDULE OF BONDS AND STOCKS OF THE FRANCESTOWN SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
TOWN.			
Peterborough, N. H., 5s.....	\$700.00	\$700.00	\$700.00
COUNTY.			
Fremont, Wyo., 8s.....	2,500.00	2,500.00	2,650.00
CITY.			
Des Moines, Io., 7s.....	5,250.00	5,000.00	5,000.00
	<u>\$8,450.00</u>	<u>\$8,200.00</u>	<u>\$8,350.00</u>
STOCKS.			
BANK.			
First National, Francestown.....	\$3,750.00	\$3,200.00	\$3,890.00
Richardson County, Falls City, Neb.	2,100.00	2,000.00	2,143.75
Bank of Stella, Stella, Neb.....	1,800.00	1,800.00	1,893.75
Sioux City Nat., Sioux City, Io.....	2,750.00	2,500.00	2,515.00
	<u>\$10,400.00</u>	<u>\$9,500.00</u>	<u>\$10,442.50</u>
MISCELLANEOUS.			
Nebraska Loan & Trust Co., Hastings, Neb.....	\$6,000.00	\$5,000.00	\$5,000.00
New Hampshire Fire Insurance Co.	1,500.00	1,000.00	1,300.00
American Mort. & Investment Co..		1,000.00	500.00
American Investment Co.....	1,000.00	1,000.00	1,000.00
	<u>\$8,500.00</u>	<u>\$8,000.00</u>	<u>\$7,800.00</u>

FRANKLIN SAVINGS BANK.—FRANKLIN.

GEO. W. NESMITH, *President.*A. PROCTOR, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$652,965.85	\$652,965.85
Guaranty fund.....	26,183.01	26,183.01
Surplus.....	14,108.82	14,108.82
Premium on stocks and bonds.....	12,117.50	
	<u>\$705,375.18</u>	<u>\$693,257.68</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$279,570.00	\$279,570.00	\$279,570.00
Loans secured by local real estate.....	57,544.25	57,544.25	57,544.25
Loans on personal security.....	78,566.41	78,566.41	78,566.41
Loans on collateral security.....	98,731.94	98,731.94	98,731.94
County, city, town, and district bonds.....	100.00	100.00	100.00
Railroad bonds.....	99,252.50	90,500.00	90,500.00
Railroad stock.....	20,255.00	22,000.00	20,500.00
Bank stock.....	23,710.00	25,600.00	25,600.00
Miscellaneous bonds.....	25,000.00	25,000.00	25,000.00
Miscellaneous stocks.....	4,000.00	3,500.00	3,500.00
Balance on deposit in Franklin National Bank.....	10,846.87	10,846.87	10,846.87
Bank fixtures.....	500.00	500.00	500.00
Cash on hand.....	2,298.21	2,298.21	2,298.21
	<u>\$705,375.18</u>	<u>\$694,757.68</u>	<u>\$693,257.68</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	\$39,093.37
Deduct expenses for 1886	.	.	\$1,876.70	
Deduct state tax for 1886	.	.	6,296.28	
			<u>8,172.98</u>	
Net profits to be accounted for	.	.	.	\$30,920.39
Dividend of 4 per cent, Oct. 1, 1886	.	\$24,250.04		
Carried to guaranty fund	.	3,020.67		
Balance of profits for 1886	.	3,649.68		
Net profits (as above) accounted for	.	<u>\$30,920.39</u>		

Guaranty fund Jan. 1, 1886	\$23,162.34
Other undivided profits Jan. 1, 1886	8,583.66
Total surplus profits Jan. 1, 1886	————— \$31,746.00
Guaranty fund Jan. 1, 1887	\$26,183.01
Other undivided profits Jan. 1, 1887	12,233.34
Total surplus profits Jan. 1, 1887	————— 38,416.35

Increase for the year 1886 \$6,670.35

Surplus profits — Jan. 1, 1883, \$21,574.84; Jan. 1, 1884, \$28,063.91; Jan. 1, 1885, \$31,184.97; Jan. 1, 1886, \$31,746; Jan. 1, 1887, \$38,416.35.

Incorporated 1869. Charter perpetual.

Examination completed Jan. 11, 1886, by Chas. E. Cooper.

Vice-President — None.

Trustees — Geo. W. Nesmith, Daniel Barnard, Warren F. Daniell, John H. Rowell, John Taylor, Walter Aiken, A. W. Sulloway, H. A. Weymouth, I. N. Blodgett, E. B. S. Sanborn, C. C. Kenrick, David S. Gilchrist, F. L. Morrison.

Treasurer's bond \$55,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Oct. 12, 1874. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerks — None.

Annual compensation of treasurer, \$1,400.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$68,569.46; as surety, \$9,363.06, by unanimous consent of trustees.

Loans and investments are made by Geo. W. Nesmith, I. N. Blodgett, and A. W. Sulloway; meet every Saturday.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,921; increase since last examination by Bank Commissioners, 60.

Amount of deposits, \$652,965.85; increase since last examination, \$16,638.43.

Amount of bank's assets in Boston for safe-keeping, \$47,600.

Number of single loans of \$1,000 or less to separate parties in the State, 195.

Total amount of loans, \$514,412.60.

Total amount of stocks and bonds, \$165,200.

Largest amount loaned to any individual, corporation, or company, \$34,000.

Amount of assets with interest unpaid for over six months, \$9,500.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$353,042.60.

Total amount loaned or invested in New England, \$353,042.60.

Total amount loaned or invested out of New England, \$326,570.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest, \$100.

Total amount loaned or invested drawing 6 per cent interest, \$420,567.60.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$16,600.

Total amount loaned or invested drawing 7 per cent interest, \$219,145.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$1,500.

Total amount loaned or invested drawing 8 per cent interest, \$11,700.

Total amount loaned or invested drawing 9 per cent interest, \$3,500.

Amount invested from which no income has been received during the year, \$10,000.

Dividends for the year ending Dec. 31, 1886: Oct. 1, 1886, 4 per cent, \$24,250.04.

No extra dividend declared.

Total expense of institution for the twelve months ending Jan. 11, 1886, \$1,557.50.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$128,274.40.

Amount of dividends declared since last examination, \$24,250.04.

Amount paid on account of deposits since last examination, \$135,885.01.

SCHEDULE OF BONDS AND STOCKS OF THE FRANKLIN SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Boston, Concord & Montreal, 6s....	\$38,500.00	\$35,000.00	\$35,000.00
Northern Pacific, 6s.....	10,500.00	10,000.00	10,000.00
Concord & Claremont, 7s.....	32,480.00	29,000.00	29,000.00
Oregon Railway and Nav. Co., 7s...	5,525.00	5,000.00	5,000.00
Boston, Concord & Montreal, 7s....	1,597.50	1,500.00	1,500.00
Jackson. Lansing & Saginaw, 8s....	5,450.00	5,000.00	5,000.00
Kalamazoo & South Haven, 8s.....	5,200.00	5,000.00	5,000.00
	\$99,252.50	\$90,500.00	\$90,500.00
TOWNSHIP.			
Franklin, N. H., 4½s.....	\$100.00	\$100.00	\$100.00
MISCELLANEOUS.			
New Hampshire Trust Co. deb., 6s..	\$15,000.00	\$15,000.00	\$15,000.00
Johnson Loan and Trust Co. deb., 6s	10,000.00	10,000.00	10,000.00
	\$25,000.00	\$25,000.00	\$25,000.00
STOCKS.			
BANK.			
Franklin National, N. H.....	\$13,915.00	\$12,100.00	\$12,100.00
Derry " "	4,840.00	4,400.00	4,400.00
Hillsboro' " "	4,600.00	4,000.00	4,000.00
Citizens' " Tilton, N. H....	5,355.00	5,100.00	5,100.00
	\$28,710.00	\$25,600.00	\$25,600.00
RAILROAD.			
Pemigewasset.....	\$5,250.00	\$5,000.00	\$5,000.00
Union Pacific.....	6,150.00	10,000.00	8,500.00
Northern (N. H.).....	8,855.00	7,000.00	7,000.00
	\$20,255.00	\$22,000.00	\$20,500.00
MISCELLANEOUS.			
Nebraska Loan and Trust Co	\$3,000.00	\$2,500.00	\$2,500.00
Johnson Loan and Trust Co.....	1,000.00	1,000.00	1,000.00
	\$4,000.00	\$3,500.00	\$3,500.00

GORHAM FIVE-CENT SAVINGS BANK. — GORHAM.

WARREN NOYES, *President*.RUFUS F. INGALLS, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$64,588.42		\$64,588.42
Guaranty fund.....	1,668.74		1,668.74
Surplus.....	10,107.73		10,107.73
Cut down by decree of court, June 25, 1886, \$13,254.22.			
	\$76,364.89		\$76,364.89

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by local real estate..	\$52,679.67	\$52,679.67	\$52,679.67
Loans on personal security.....	15,519.38	15,519.38	15,519.38
Loans on collateral security.....	4,917.79	4,917.79	4,917.79
Miscellaneous stocks (Amoskeag Fire Insurance Co.).....	500.00	500.00	500.00
Balance on deposit in Casco Na- tional Bank, Portland.....	1,160.59	1,160.59	1,160.59
Cash on hand.....	1,587.46	1,587.46	1,587.46
	\$76,364.89	\$76,364.89	\$76,364.89

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$4,660.77
Deduct expenses for 1886	\$654.06
Deduct state tax for 1886	895.55
	<hr/> 1,549.61
Net profits to be accounted for	\$3,111.16
Dividend of 2 per cent, April, 1886	\$1,689.66
Dividend of 2 per cent, October, 1886	1,367.77
Balance of profits for 1886	53.73
Net profits (as above) accounted for	<hr/> \$3,111.16
Guaranty fund Jan. 1, 1886	\$1,668.74
Other undivided profits Jan. 1, 1886	1,841.63
Total surplus profits Jan. 1, 1886	<hr/> \$3,510.37

Guaranty fund Jan. 1, 1887	\$1,668.74	
Other undivided profits Jan. 1, 1887	1,554.51	
Total surplus profits Jan. 1, 1887	<u> </u>	3,223.25

Decrease for the year 1886 \$287.12

Surplus profits — Jan. 1, 1883, \$1,648.71; Jan. 1, 1884, \$863.88;
Jan. 1, 1885, \$915.86; Jan. 1, 1886, \$1,841.63; Jan. 1, 1887,
\$1,654.51.

Incorporated 1872. Charter perpetual.

Examination completed May 5, 1887, by Geo. E. Gage and Chas.
E. Cooper.

Trustees — Warren Noyes, A. S. Twitchell, T. A. Adams, T. E.
Fisk, E. Libby, W. Wight.

Treasurer's bond \$25,000, copy of which is on file in the office of
secretary of state and on records of the bank. Date of bond,
December, 1882. Sureties of bond are able to respond. Bond
deposited with president of bank for safe-keeping.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$8,648; as surety, \$1,613.39,
by unanimous consent of trustees.

Loans and investments are made by J. P. Evans, T. E. Fisk, and
T. A. Adams.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 504; increase since last examination by
Bank Commissioners, 21.

Amount of deposits, \$64,588.42; decrease since last examination,
\$4,593.89.

None of bank's assets in Boston for safe-keeping.

Number of single loans of \$1,000 or less to separate parties in the
State, 212.

Total amount of loans, \$73,116.84.

Total amount of stocks, \$500.

Largest amount loaned to any individual, corporation, or company,
\$5,000.

Amount of assets with interest unpaid for over six months,
\$1,806.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$73,616.84.

Total amount loaned or invested in New England, \$73,616.84.

Total amount loaned or invested drawing 6 per cent interest,
\$67,552.46.

Total amount loaned or invested drawing 7 per cent interest,
\$6,064.38.

Dividends for the year ending Dec. 31, 1886: April, 1886,
\$1,689.66; Oct. 2, 1886, \$1,367.77.

No extra dividend declared.

Total expense of institution for the twelve months ending May 1,
1886, \$621.86.

GUARANTY SAVINGS BANK. — KEENE.

JAMES BURNAP, *President.*O. G. DORT, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$528,745.81		\$528,745.81
Guaranty fund.....	80,000.00		80,000.00
Surplus	15,907.38		15,907.38
Premium on stocks and bonds	16,325.00		
	\$640,978.19		\$624,653.19

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$349,660.00	\$349,660.00	\$349,660.00
Loans secured by local real estate.....	11,575.85	11,575.85	11,575.85
Loans on personal security.....	5,525.00	5,525.00	5,525.00
Loans on personal security (West- ern).....	9,900.00	9,900.00	9,900.00
Loans on collateral security.....	2,690.00	2,690.00	2,690.00
Loans on collateral security (West- ern).....	9,000.00	9,000.00	9,000.00
County, city, town, and district bonds.....	33,800.00	33,000.00	33,000.00
Railroad bonds.....	4,180.00	4,000.00	4,000.00
Railroad stock.....	50,810.00	42,400.00	43,290.00
Bank stock.....	39,900.00	37,000.00	37,775.00
Miscellaneous bonds.....	41,200.00	41,500.00	41,000.00
Miscellaneous stocks.....	59,800.00	51,600.00	54,300.00
Balance on deposit in Citizens' National Bank.....	16,736.48	16,736.48	16,736.48
In hands of investing agents.....	974.08	974.08	974.08
Cash on hand	5,226.78	5,226.78	5,226.78
	\$640,978.19	\$620,788.19	\$624,653.19

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$34,029.55
Deduct expenses for 1886	\$1,154.93
Deduct state tax for 1886	4,348.70
Deduct premium charged off	2,085.01
	<u>7,588.64</u>
Net profits to be accounted for	\$26,440.91

Dividend of 2½ per cent, July 1, 1886	. \$9,654.62	
Dividend of 2½ per cent, Jan. 1, 1887	. 11,513.78	
Balance of profits for 1886	. 5,272.51	
Net profits (as above) accounted for	. ————	\$26,440.91
Guaranty fund Jan. 1, 1886	. \$50,000.00	
Other undivided profits Jan. 1, 1886	. 5,843.77	
Total surplus profits Jan. 1, 1886	. ————	\$55,843.77
Guaranty fund Jan. 1, 1887	. \$50,000.00	
Other undivided profits Jan. 1, 1887	. 11,116.28	
Total surplus profits Jan. 1, 1887	. ————	61,116.28
		<hr/>
Increase for the year 1886	. . . . .	\$5,272.51
Surplus profits — Jan. 1, 1885, \$52,822.83 ; Jan. 1, 1886, \$55,843.77 ; Jan. 1, 1887, \$61,116.28.		

Incorporated 1883. Charter perpetual.

Examination completed Jan. 20, 1887, by Chas. E. Cooper.

Vice-President — Edward C. Thayer.

Trustees — James Burnap, Edward C. Thayer, George C. Davis, William P. Chamberlain, John S. Collins, Horatio Colony, S. M. Dinsmoor, George E. Holbrook, Charles H. Hersey, Obed G. Dort.

Treasurer's bond \$50,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 31, 1885. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — H. S. Martin.

Annual compensation of treasurer, \$1,000.

Annual compensation of clerk, nothing.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing ; as surety, \$1,000, by unanimous consent of trustees.

Loans and investments are made by committee, which meets once in two weeks, or at call of treasurer.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,560 ; increase since last examination by Bank Commissioners, 353.

Amount of deposits, \$528,745.81 ; increase since last examination, \$175,003.77.

Number of single loans of \$1,000 or less to separate parties in the State, 24.

Total amount of loans, \$388,350.85.

Total amount of stocks and bonds, \$213,365.

Largest amount loaned to any individual, corporation, or company, \$8,000.

Amount of assets with interest unpaid for over six months,
\$7,275.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$41,290.85.

Total amount loaned or invested in New England, \$41,290.85.

Total amount loaned or invested out of New England, \$560,560.

Total amount loaned or invested drawing 4 per cent interest,
\$10,000.

Total amount loaned or invested drawing 5 per cent interest,
\$4,000.

Total amount loaned or invested drawing 6 per cent interest,
\$86,090.85.

Total amount loaned or invested drawing 7 per cent interest,
\$246,235.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$975.

Total amount loaned or invested drawing 8 per cent interest,
\$192,450.

Total amount loaned or invested drawing 10 per cent interest,
\$22,000.

Amount invested from which no income has been received during the
year, nothing.

Dividends for the year ending Dec. 31, 1886: July 1, 1886, $2\frac{1}{2}$
per cent, \$9,654.62; Jan 1, 1887, $2\frac{1}{2}$ per cent, \$11,513.78.

Total expense of institution for the twelve months ending Jan. 20,
1887, \$1,150.43.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, none.

Amount of deposits received since last examination, \$266,982.60.

Amount of dividends declared since last examination, \$21,168.40.

Amount paid on account of deposits since last examination,
\$113,147.23.

SCHEDULE OF BONDS AND STOCKS OF THE GUARANTY SAVINGS
BANK. — KEENE.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago, Burlington & Northern, 5s	\$4,180.00	\$4,000.00	\$4,000.00
COUNTY.			
Pueblo, Col., 7s.....	\$5,000.00	\$5,000.00	\$5,000.00
Delta, Col., 8s.....	5,000.00	5,000.00	5,000.00
Bingham, Id., 8s.....	10,500.00	10,000.00	10,000.00
Rio Grande, Col., 10s.....	2,000.00	2,000.00	2,000.00
	\$22,500.00	\$22,000.00	\$22,000.00
TOWNSHIP.			
Sedalia, Col., 8s.....	\$6,300.00	\$6,000.00	\$6,000.00
SCHOOL DISTRICT.			
Mesa County, Col., 8s.....	\$5,000.00	\$5,000.00	\$5,000.00
MISCELLANEOUS.			
El Dorado Water Supply Co., Kan., 6s.....	\$10,000.00	\$10,000.00	\$10,000.00
Winfield Water Co., Kan., 6s.....	5,000.00	5,000.00	5,000.00
Clay Centre Water Co., Kan., 7s.....	5,000.00	5,000.00	5,000.00
National Water-works, N. Y., 6s.....	4,900.00	5,000.00	5,000.00
Keene Water-works, N. H., 6s.....	1,500.00	1,500.00	1,500.00
Wahpeton Water Co., Dak., 6s.....	5,000.00	5,000.00	5,000.00
Capital Building, N. M., 7s.....	5,150.00	5,000.00	5,000.00
Oregon Improvement Co., W. T., 6s	4,650.00	5,000.00	4,500.00
	\$41,200.00	\$41,500.00	\$41,000.00
STOCKS.			
BANK.			
Winchester Nat., Winchester,.....	\$11,000.00	\$10,000.00	\$10,000.00
Keene National, Keene,.....	1,600.00	1,000.00	1,475.00
Citizens' National, Keene,.....	1,300.00	1,000.00	1,300.00
First National, Winfield.....	11,000.00	10,000.00	10,000.00
American Nat., Kansas City, Mo...	5,000.00	5,000.00	5,000.00
Citizens' Bank, Wichita, Kan.....	10,000.00	10,000.00	10,000.00
	\$39,900.00	\$37,000.00	\$37,775.00
RAILROAD.			
New York Central.....	\$11,200.00	\$10,000.00	\$11,250.00
Atchison, Topeka & Santa Fé.....	10,600.00	10,000.00	7,500.00
Chicago, Burlington & Quincy.....	21,000.00	15,000.00	18,300.00
St. Paul, Minneapolis & Manitoba..	5,850.00	5,000.00	5,800.00
Chicago, Burlington & Northern....	2,160.00	2,400.00	440.00
	\$50,810.00	\$42,400.00	\$43,290.00

SCHEDULE OF BONDS AND STOCKS OF THE GUARANTY SAVINGS
BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
Union Loan & Trust Co., Sioux City, Io.....	\$2,500.00	\$2,500.00	\$2,500.00
Jarvis, Conklin Mortgage & Trust Co., Kansas City, Mo.....	2,500.00	2,500.00	2,500.00
Pullman Palace Car Co.....	22,800.00	15,000.00	17,700.00
New Hampshire Trust Co.....	8,400.00	8,000.00	8,000.00
Davidson Investment Co.....	3,600.00	3,600.00	3,600.00
Winfield Mortgage & Trust Co.....	20,000.00	20,000.00	20,000.00
	\$59,800.00	\$51,600.00	\$54,300.00

GUARANTY SAVINGS BANK. — MANCHESTER.

JOHN M. PARKER, *President.*JAMES A. WESTON, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$724,712.23		\$724,712.23
Guaranty fund	100,000.00		100,000.00
Surplus.....	45,544.48		45,544.48
Premium on stocks and bonds.....	17,213.64		
	<u>\$887,470.35</u>		<u>\$870,256.71</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$240,085.24	\$240,085.24	\$240,085.24
Loans secured by Western city mortgages.....	238,130.00	238,130.00	238,130.00
Loans secured by local real estate.	36,326.62	36,326.62	36,326.62
Loans on personal security.....	18,820.19	18,820.19	18,820.19
Loans on collateral security.....	108,581.29	108,581.29	108,581.29
County, city, town, and district bonds.....	19,194.00	18,800.00	18,800.00
Railroad bonds.....	55,820.00	54,000.00	54,000.00
Railroad stock.....	76,035.00	75,700.00	67,620.36
Bank stock.....	23,660.00	18,650.00	18,650.00
Manufacturing stock.....	4,680.00	2,700.00	4,655.00
Miscellaneous bonds.....	15,700.00	15,000.00	15,000.00
Miscellaneous stocks.....	15,150.00	14,300.00	14,300.00
Balance on deposit in Merchants' National Bank, Manchester.....	22,540.23	22,540.23	22,540.23
In hands of investing agents.....	3,000.00	3,000.00	3,000.00
Real estate acquired or held by foreclosure.....	9,747.78	9,747.78	9,747.78
	<u>\$887,470.35</u>	<u>\$876,381.35</u>	<u>\$870,256.71</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$54,294.04
Deduct expenses for 1886	\$2,176.04
Deduct state tax for 1886	7,078.88
Deduct items charged, premium	7,820.00
	<u>17,074.92</u>
Net profits to be accounted for	<u>\$37,219.12</u>

Two dividends of 4 per cent each, April and Oct., 1886 (special depositors)	. \$5,760.00
Dividend of 4½ per cent, April 1, 1886 (general depositors)	. 26,966.59
Balance of profits for 1886	. 4,492.53
Net profits (as above) accounted for	. ———— \$37,219.12
Guaranty fund Jan. 1, 1886	. \$72,000.00
Other undivided profits Jan. 1, 1886	. 37,186.08
Total surplus profits Jan. 1, 1886	. ———— \$109,186.08
Guaranty fund Jan. 1, 1887	. \$100,000.00
Other undivided profits Jan. 1, 1887	. 41,678.61
Total surplus profits Jan. 1, 1887	. ———— 141,678.61

Increase for the year 1886 \$32,492.53

Surplus profits — Jan. 1, 1883, \$65,529.77 ; Jan. 1, 1884, \$68,-
886.48 ; Jan. 1, 1885, \$84,749.35 ; Jan. 1, 1886, \$103,223.21 ;
Jan. 1, 1887, \$141,678.61.

Incorporated 1879. Charter perpetual.

Examination completed Feb. 12, 1887, by Geo. E. Gage.

Trustees — John M. Parker, Nathan P. Hunt, David A. Parker,
Hiram K. Slayton, Alonzo Elliott, John P. Moore, John Kennard,
Bushrod W. Hill, James A. Weston.

Treasurer's bond \$50,000, copy of which is on file in the office of
secretary of state and on records of the bank. Date of bond,
Feb. 21, 1882. Sureties of bond are able to respond. Bond
deposited with John M. Parker, president, for safe-keeping.

Clerk — Edwin H. Carpenter.

Annual compensation of treasurer, \$1,000.

Annual compensation of clerk, \$800.

Officers have taken their official oath.

No indebtedness of trustees as principal, or as surety.

Loans and investments are made by executive committee, consisting
of John M. Parker, N. P. Hunt, James A. Weston.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,327 ; increase since last examination by
Bank Commissioners, 120.

Amount of deposits, \$724,712.23 ; increase since last examination,
\$67,720.24.

Number of single loans of \$1,000 or less to separate parties in the
State, 23.

Total amount of loans, \$641,943.34.

Total amount of stocks and bonds, \$193,025.36.

Largest amount loaned to any individual, corporation, or company,
\$30,000.

Amount of assets with interest unpaid for over six months, \$2,200.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$217,396.91.

Total amount loaned or invested in New England, \$243,846.91.

Total amount loaned or invested out of New England, \$598,121.79.

Total amount loaned or invested drawing 6 per cent interest, \$234,619.15.

Total amount loaned or invested drawing 7 per cent interest, \$137,367.02.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$4,570.19.

Total amount loaned or invested drawing 8 per cent interest, \$395,962.

Total amount loaned or invested drawing 9 per cent interest, \$38,258.34.

Total amount loaned or invested drawing 10 per cent interest, \$9,275.

Total amount loaned or invested drawing 12 per cent interest, \$4,967.

Amount invested from which no income has been received during the year, \$16,950.

Dividends for the year ending Dec. 31, 1886: Two dividends — 4 per cent each — to special depositors, \$5,760; $4\frac{1}{2}$ per cent, to general depositors, April 1, 1886, \$26,966.59.

No extra dividend declared.

Total expense of institution for the twelve months ending Feb. 12, 1887, \$2,098.04.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, \$647.36.

Amount of deposits received since last examination, \$238,559.65.

Amount of dividends declared since last examination, \$26,966.59.

Amount paid on account of deposits since last examination, \$197,806.

SCHEDULE OF BONDS AND STOCKS OF THE GUARANTY SAVINGS
BANK. — MANCHESTER.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Utah Southern, 7s.....	\$8,600.00	\$10,000.00	\$10,000.00
Boston, Concord & Montreal, 6s....	20,900.00	19,000.00	19,000.00
Oregon Short Line, 6s.....	11,330.00	11,000.00	11,000.00
St. Louis & San Francisco, 7s.....	6,270.00	6,000.00	6,000.00
Terre Haute & Southeastern, 7s....	6,600.00	6,000.00	6,000.00
Kansas Pacific, 6s.....	2,120.00	2,000.00	2,000.00
	\$55,820.00	\$54,000.00	\$54,000.00
COUNTY.			
Lawrence, Dak., 10s	\$4,944.00	\$4,800.00	\$4,800.00
Douglas, Neb., 7s.....	5,250.00	5,000.00	5,000.00
	\$10,194.00	\$9,800.00	\$9,800.00
SCHOOL DISTRICT.			
Ind. No. 3, Walsh County, Dak., 8s..	\$8,000.00	\$8,000.00	\$8,000.00
Dwight Towns'p, Richland County, Dak., 8s.....	1,000.00	1,000.00	1,000.00
	\$9,000.00	\$9,000.00	\$9,000.00
MISCELLANEOUS.			
Brainerd Water-works, 7s... ..	\$10,700.00	\$10,000.00	\$10,000.00
Wahpeton Water-works, 6s.....	5,000.00	5,000.00	5,000.00
	\$15,700.00	\$15,000.00	\$15,000.00
STOCKS.			
BANK.			
Merchants' National.....	\$21,710.00	\$16,700.00	\$16,700.00
Clark County, Osceola, Io.....	1,950.00	1,950.00	1,950.00
	\$23,660.00	\$18,650.00	\$18,650.00
RAILROAD.			
Oregon Short Line.....	\$1,475.00	\$5,000.00	000.00
Cincinnati, Lebanon & Northern...	2,000.00	5,000.00	\$2,000.00
Atchison, Topeka & Santa Fé.....	10,600.00	10,000.00	9,400.00
Chicago, Burlington & Quincy.....	11,900.00	8,500.00	11,886.36
Lake Shore & Michigan Southern..	4,750.00	5,000.00	5,000.00
Connecticut & Passumpsic....	22,000.00	20,000.00	17,150.00
Pemigewasset Valley.....	23,310.00	22,200.00	22,184.00
	\$76,035.00	\$75,700.00	\$67,620.36
MISCELLANEOUS.			
New Hampshire Trust Co.....	\$5,250.00	\$5,000.00	\$5,000.00
Franklin Co., Lewiston, Me.....	6,300.00	6,300.00	6,300.00
Connecticut Fire Ins., Hartford....	3,600.00	3,000.00	3,000.00
	\$15,150.00	\$14,300.00	\$14,300.00
MANUFACTURING.			
Amoskeag Manufacturing Co.....	\$2,300.00	\$1,000.00	\$1,765.00
Manchester Mills	2,380.00	1,700.00	2,890.00
	\$4,680.00	\$2,700.00	\$4,655.00

HINSDALE SAVINGS BANK. — HINSDALE.

C. J. AMIDON, *President.*GEORGE WELLMAN, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$230,792.74		\$230,792.74
Guaranty fund	11,036.66		11,036.66
Surplus	6,409.22		6,409.22
Premium on stocks and bonds.....	3,920.00		
	<u>\$252,158.62</u>		<u>\$248,238.62</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$102,978.61	\$102,978.61	\$102,978.61
Loans secured by local real estate	52,519.00	52,519.00	52,519.00
Loans on personal security	10,937.75	10,937.75	10,937.75
County, city, town, and district bonds	44,067.48	40,397.48	40,387.48
Bank stock	7,000.00	7,000.00	7,000.00
Miscellaneous bonds	9,000.00	9,000.00	9,000.00
Miscellaneous stocks	23,810.42	23,570.42	23,570.42
Balance on deposit in Vermont Na- tional Bank, Brattleborough.....	483.42	483.42	483.42
Bank fixtures	723.92	723.92	723.92
Cash on hand	638.02	638.02	638.02
	<u>\$252,158.62</u>	<u>\$248,248.62</u>	<u>\$248,238.62</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886 . . .	\$18,690.45
Deduct expenses for 1886 . . .	\$869.83
Deduct state tax for 1886 . . .	2,201.43
Deduct items charged off . . .	596.58
	<u>3,667.84</u>

Net profits to be accounted for . . . \$15,022.61

Dividend of 2 per cent, March 31, 1886 .	\$4,290.91
Dividend of 2 per cent, Sept. 30, 1886 .	4,393.67
Carried to guaranty fund . . .	3,854.78
Balance of profits for 1886 . . .	2,483.25
Net profits (as above) accounted for .	<u>\$15,022.61</u>

Guaranty fund Jan. 1, 1886	\$7,181.88	
Other undivided profits Jan. 1, 1886	4,306.02	
Total surplus profits Jan. 1, 1886	—————	\$11,487.90
Guaranty fund Jan. 1, 1887	\$11,036.66	
Other undivided profits Jan. 1, 1887	6,789.27	
Total surplus profits Jan. 1, 1887	—————	17,825.93
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Increase for the year 1886		\$6,338.03
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Surplus profits — Jan. 1, 1883, \$3,926.60 ; Jan. 1, 1884, \$6,- 129.52 ; Jan. 1, 1885, \$6,881.32 ; Jan. 1, 1886, \$11,487.90 ; Jan. 1, 1887, \$17,825.93.		

Incorporated 1874. Charter perpetual.

Examination completed Dec. 28, 1886, by Chas. E. Cooper.

Vice-President — Edward Stebbins.

Trustees — N. Richardson, Geo. S. Wilder, C. S. Fay, H. T. Horton, D. W. Stearns, A. B. Davis, Edward Bishop, C. B. Hopkins, P. F. Amidon, D. F. Ferrin, N. M. Worden, Cornelius Fitzgerald.

Treasurer's bond \$35,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 8, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Cora Wellman.

Annual compensation of treasurer, \$690.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,239 ; as surety, \$4,190, by unanimous consent of trustees.

Loans and investments are made by C. J. Amidon, C. S. Fay, G. S. Wilder, H. F. Horton, C. B. Hopkins. No regular meeting.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 772 ; increase since last examination by Bank Commissioners, 33.

Amount of deposits, \$230,792.74 ; increase since last examination, \$8,297.29.

Amount of bank's assets in Brattleborough, Vt., for safe-keeping, \$79,957.90.

Number of single loans of \$1,000 or less to separate parties in the State, 114.

Total amount of loans, \$166,435.36.

Total amount of stocks and bonds, \$79,957.90.

Largest amount loaned to any individual, corporation, or company, \$13,046.50.

Amount of assets with interest unpaid for over six months,
\$2,200.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$68,266.75.

Total amount loaned or invested in New England, \$68,266.75.

Total amount loaned or invested out of New England, \$178,146.51.

Total amount loaned or invested drawing 6 per cent interest,
\$82,906.75.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$3,000.

Total amount loaned or invested drawing 7 per cent interest,
\$106.980.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest,
\$1,000.

Total amount loaned or invested drawing 8 per cent interest,
\$20,050.

Total amount loaned or invested drawing 10 per cent interest,
\$27,466.51.

Amount invested from which no income has been received during
the year, \$5,000.

Dividends for the year ending Dec. 31, 1886: March 31, 1886,
2 per cent, \$4,290.91; Sept. 30, 1886, 2 per cent, \$4,393.67.

Total expense of institution for the twelve months ending Dec. 28,
1886, \$846.14.

Nothing charged off as losses since last examination.

Amount of other taxes, none.

SCHEDULE OF BONDS AND STOCKS OF THE HINSDALE SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
CITY.			
Minneapolis, Minn., 7s.....	\$2,240.00	\$2,000.00	\$2,000.00
Cincinnati, O., 7 3-10s.....	1,300.00	1,000.00	1,000.00
Des Moines, Io., 7s.....	5,500.00	5,000.00	5,000.00
Toledo, O., 8s.....	2,400.00	2,000.00	2,000.00
Omaha, Neb., 6s.....	5,750.00	5,000.00	5,000.00
Bay City, Mich., 8s.....	1,180.00	1,000.00	1,000.00
COUNTY.			
Douglas, Neb., 7s.....	3,000.00	3,000.00	3,000.00
Arapahoe, Col., 8s.....	1,040.00	1,000.00	1,000.00
Crow Wing, Minn., 8s.....	8,050.00	7,000.00	7,000.00
Saguache, Col., 6s.....	3,060.00	3,000.00	3,000.00
Uinta, Wyo., 7s.....	5,150.00	5,000.00	5,000.00
Alturas warrants, Col., 10s	2,897.48	2,897.48	2,897.48
Garfield, " " 10s.....	1,000.00	1,000.00	990.00
Montrose, " " 10s.....	1,500.00	1,500.00	1,500.00
	\$44,067.48	\$40,397.48	\$40,387.48
MISCELLANEOUS.			
Lombard Investment Co. deben., 6s	\$1,000.00	\$1,000.00	\$1,000.00
Texas Loan Agency debentures, 8s.	4,000.00	4,000.00	4,000.00
Kan. Investment Co. debentures, 6s	4,000.00	4,000.00	4,000.00
	\$9,000.00	\$9,000.00	\$9,000.00
STOCKS.			
BANK.			
Citizens' State, Wichita, Kan.....	\$7,000.00	\$7,000.00	\$7,000.00
MISCELLANEOUS.			
Winton & Deming Loan Co.....	\$2,000.00	\$2,000.00	\$2,000.00
Davidson Investment Co.....	6,000.00	6,000.00	6,000.00
Anglo-American Mort. & Agency Co.	7,770.42	7,770.42	7,770.42
New Hampshire Trust Co.....	5,040.00	4,800.00	4,800.00
Texas Loan Agency	3,000.00	3,000.00	3,000.00
	\$23,810.42	\$23,570.42	\$23,570.42

IONA SAVINGS BANK. — TILTON.

ADAM S. BALLANTYNE, *President.* WM. T. CASS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$302,081.95		\$302,081.95
Guaranty fund	7,900.00		7,900.00
Surplus.....	11,868.79		11,868.79
	\$321,850.74		
Premium on stocks and bonds, im- paired.....	1,370 00		
	\$320,480.74		\$321,850.74

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$126,230.00	\$126,230.00	\$126,230.00
Loans secured by local real estate.	100,866.46	100,866.46	100,866.46
Loans on personal security.....	42,931.91	42,931.91	42,931.91
Loans on collateral security.....	14,796.00	14,796.00	14,796.00
County, city, town, and district bonds.....	9,490.00	10,000.00	10,000.00
Railroad bonds.	14,510.00	16,000.00	14,500.00
Railroad stock.....	580.00	1,450.00	1,450.00
Balance on deposit in Citizens' National Bank.....	4,000.00	4,000.00	4,000.00
Real estate acquired or held by foreclosure.....	6,370.00	6,370.00	6,370.00
Cash on hand.....	706.37	706.37	706.37
	\$320,480.74	\$323,350.74	\$321,850.74

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$17,706.15
Deduct expenses for 1886	\$1,404.11
Deduct state tax for 1886	2,967.76
Deduct shrinkage in real estate . .	123.00
Deduct items charged off	85.75
	<u>4,580.62</u>
Net profits to be accounted for . . .	\$13,125.53

Dividend of 4 per cent, 1886 . . .	\$11,224.17
Carried to guaranty fund . . .	1,400.00
Balance of profits for 1886 . . .	501.36
Net profits (as above) accounted for . . .	<u>\$13,125.53</u>
Guaranty fund Jan. 1, 1886 . . .	\$6,500.00
Other undivided profits Jan. 1, 1886 . . .	1,544.19
Total surplus profits Jan. 1, 1886 . . .	<u>\$8,044.19</u>
Guaranty fund Jan. 1, 1887 . . .	\$7,900.00
Other undivided profits Jan. 1, 1887 . . .	2,045.55
Total surplus profits Jan. 1, 1887 . . .	<u>9,945.55</u>
Increase for the year 1886	\$1,901.36
Surplus profits — Jan. 1, 1886, \$8,044.19 ; Jan. 1, 1887, \$9,945.55.	

Incorporated 1870. Charter perpetual.

Examination completed Oct. 19, 1886, by Geo. E. Gage.

Trustees — Adam S. Ballantyne, Wm. T. Cass, S. W. Davis, G. Piper, H. B. Savage, R. T. Noyes, S. Dixon, F. Hill, C. Boynton.

Treasurer's bond \$35,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 1, 1881. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Arthur T. Cass.

Annual compensation of treasurer, \$1,000.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,840 ; as surety, \$375, by unanimous consent of trustees.

Loans and investments are made by treasurer with advice from investment committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 906 ; increase since last examination by Bank Commissioners, 18.

Amount of deposits, \$302,081.95 ; increase since last examination, \$18,992.41.

Amount of bank's assets in Boston for safe-keeping, \$26,000.

Number of single loans of \$1,000 or less to separate parties in the State, 158.

Total amount of loans, \$285,273.37.

Total amount of stocks and bonds, \$25,500.

Largest amount loaned to any individual, corporation, or company, \$8,300.

Amount of assets with interest unpaid for over six months, \$22,233.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$175,964.37.

Total amount loaned or invested in New England, \$175,964.37.

Total amount loaned or invested out of New England, \$141,180.

Total amount loaned or invested drawing 6 per cent interest, \$189,544.37.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$17,200.

Total amount loaned or invested drawing 7 per cent interest, \$95,600.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$2,000.

Total amount loaned or invested drawing 8 per cent interest, \$3,480.

Amount invested from which no income has been received during the year, \$5,950.

Dividends for the year ending Dec. 31, 1886: 4 per cent, 1886, \$11,224.17.

No extra dividend declared.

Total expense of institution for the twelve months ending Oct. 19, 1886, \$994.42.

Amount charged off as losses since last examination, \$85.75.

Amount of other taxes, \$332.73.

Amount of deposits received since last examination, \$75,810.92.

Amount of dividends declared since last examination, \$10,352.45.

Amount paid on account of deposits since last examination, \$66,276.93.

SCHEDULE OF BONDS AND STOCKS OF THE IONA SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Union Pacific, 6s.....	\$2,120.00	\$2,000.00	\$2,000.00
Toledo, Cincinnati & St. Louis.....	500.00	3,000.00	1,500.00
Boston, Concord & Montreal, 7s....	6,390.00	6,000.00	6,000.00
Boston, Concord & Montreal, 6s....	5,500.00	5,000.00	5,000.00
	\$14,510.00	\$16,000.00	\$14,500.00
CITY.			
Evansville, 7s.....	\$750.00	\$1,000.00	\$1,000.00
Elizabeth, 7s.....	2,340.00	3,000.00	3,000.00
Erie, Penn., 7s.....	1,050.00	1,000.00	1,000.00
Jeffersonville, Ind., 7 3-10s.....	2,140.00	2,000.00	2,000.00
Dubuque, Ill., 6s.....	2,140.00	2,000.00	2,000.00
Sandusky, 7s.....	1,070.00	1,000.00	1,000.00
	\$9,490.00	\$10,000.00	\$10,000.00
STOCKS.			
RAILROAD.			
Central Massachusetts.....	\$580.00	\$1,000.00	\$1,000.00
Toledo, Cincinnati & St. Louis scrip		450.00	450.00
	\$580.00	\$1,450.00	\$1,450.00

KEENE FIVE-CENTS SAVINGS BANK. — KEENE.

C. T. BUFFUM, *President.*G. A. LITCHFIELD, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$2,191,723.45		\$2,191,723.45
Guaranty fund.....	100,000.00		100,000.00
Surplus.....	9,780.92		9,780.92
Premium on stocks and bonds.....	20,504.50		
	\$2,322,008.87		\$2,301,504.37

Resources.

	Market Value. April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$1,087,655.13	\$1,087,655.13	\$1,087,655.13
Loans secured by local real estate..	282,790.58	282,790.58	282,790.58
Loans on personal security.....	47,265.88	47,265.88	47,265.88
Loans on personal security (Western).....	64,411.74	64,411.74	64,411.74
Loans on collateral security.....	38,781.50	38,781.50	38,781.50
Loans on collateral security (Western).....	59,500.00	59,500.00	59,500.00
County, city, town, and district bonds	228,566.00	231,147.00	233,528.50
Railroad bonds.....	46,050.00	47,500.00	47,243.75
Railroad stock	49,300.00	40,000.00	38,781.25
Bank stock.....	98,048.00	82,400.00	90,691.00
Miscellaneous bonds.....	159,429.28	160,204.28	160,054.28
Miscellaneous stocks.....	107,870.12	98,210.12	98,460.12
Balance on deposit in Keene national banks.....	16,865.86	16,865.86	16,865.86
In hands of investing agents.....	13,191.00	13,191.00	13,191.00
Real estate acquired or held by foreclosure.....	4,851.55	4,851.55	4,851.55
Certificate of deposit (State National Bank, Wichita, Kan.)..	15,000.00	15,000.00	15,000.00
Cash on hand.....	2,432.23	2,432.23	2,432.23
	\$2,322,008.87	\$2,292,206.87	\$2,301,504.37

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$140,005.26
Deduct expenses for 1886	\$3,775.21
Deduct state tax for 1886	19,924.52
Deduct premiums charged off . . .	1,050.00
	<u>24,749.73</u>

Net profits to be accounted for \$115,255.53

Dividend of $2\frac{1}{2}$ per cent, July 1, 1886 .	\$49,089.78	
Dividend of $2\frac{1}{2}$ per cent, Jan. 1, 1887 .	52,060.80	
Carried to guaranty fund . . .	10,000.00	
Balance of profits for 1886 . . .	4,104.95	
Net profits (as above) accounted for .	—————	\$115,255.53
Guaranty fund Jan. 1, 1886 . . .	\$90,000.00	
Other undivided profits Jan. 1, 1886 .	3,290.89	
Total surplus profits Jan. 1, 1886 .	—————	\$93,290.89
Guaranty fund Jan. 1, 1887 . . .	\$100,000.00	
Other undivided profits Jan. 1, 1887 .	7,395.84	
Total surplus profits Jan. 1, 1887 .	—————	107,395.84
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Increase for the year 1886		\$14,104.95
Surplus profits — Jan. 1, 1883, \$21,849.47 ; Jan. 1, 1884, \$50,- 930.53 ; Jan. 1, 1885, \$78,742.37 ; Jan. 1, 1886, \$93,290.89 ; Jan. 1, 1887, \$107,395.84.		

Incorporated 1868. Charter perpetual.

Examination completed Jan. 27, 1887, by Chas. E. Cooper.

Vice-Presidents — Edward Joslin, Elijah Boyden.

Trustees — John Humphrey, Don H. Woodward, N. O. Hayward, F. E. Keyes, Hiram Blake, Joseph B. Abbott, Geo. C. Hubbard, F. A. Perry, Geo. W. Ball, H. O. Coolidge, Clark F. Rowell, John Q. Jones, John B. Fiske, Obadiah Sprague, Elbridge Clarke.

Treasurer's bond \$125,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Feb. 14, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — S. L. Randall.

Annual compensation of treasurer, \$1,800.

Annual compensation of clerk, \$700.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$13,025 ; as surety, \$4,150, by unanimous consent of trustees.

Loans and investments are made by finance committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 6,845 ; increase since last examination by Bank Commissioners, 516.

Amount of deposits, \$2,191,723.45 ; increase since last examination, \$278,567.52.

Number of single loans of \$1,000 or less to separate parties in the State, 417.

Total amount of loans, \$1,580,404.83.

Total amount of stocks and bonds, \$668,758.90.

Largest amount loaned to any individual, corporation, or company,
\$26,000.

Amount of assets with interest unpaid for over six months, \$56,-
829.48.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$424,389.51.

Total amount loaned or invested in New England, \$445,589.51.

Total amount loaned or invested out of New England, \$1,814,128.27.

Total amount loaned or invested drawing 5 per cent interest,
\$12,200.

Total amount loaned or invested drawing 6 per cent interest,
\$854,017.96.

Total amount loaned or invested drawing 6½ per cent interest,
\$29,200.

Total amount loaned or invested drawing 7 per cent interest,
\$979,632.12.

Total amount loaned or invested drawing 7½ per cent interest,
\$15,555.13.

Total amount loaned or invested drawing 8 per cent interest,
\$264,106.74.

Total amount loaned or invested drawing 9 per cent interest,
\$2,900.

Total amount loaned or invested drawing 10 per cent interest,
\$77,254.28.

Total amount loaned or invested drawing 11 per cent interest,
\$10,000.

Amount invested from which no income has been received during
the year, \$14,851.55.

Dividends for the year ending Dec. 31, 1886: July 1, 1886, 2½
per cent, \$49,089.78; Jan. 1, 1887, 2½ per cent, \$52,060.80.

No extra dividend declared.

Total expense of institution for the twelve months ending Jan. 27,
1887, \$3,775.21.

Amount charged off as losses since last examination, \$12,240.74.

Amount of other taxes, \$46.08.

Amount of deposits received since last examination, \$558,583.80.

Amount of dividends declared since last examination, \$147,258.01.

Amount paid on account of deposits since last examination,
\$427,274.29.

SCHEDULE OF BONDS AND STOCKS OF THE KEENE FIVE-CENTS
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Atlantic and Pacific, 6s.....	\$8,600.00	\$10,000.00	\$10,400.00
Cheshire, 6s.....	2,750.00	2,500.00	2,631.25
Indiana, Bloomington & Western, 6s....	9,400.00	10,000.00	9,587.50
Long Island City & Flushing, 6s....	5,000.00	5,000.00	4,625.00
Oregon Short Line, 6s....	10,300.00	10,000.00	10,000.00
Canastota Northern, 6s.....	10,000.00	10,000.00	10,000.00
	\$46,050.00	\$47,500.00	\$47,243.75
CITY.			
Leavenworth, Kan., 5s.....	\$5,400.00	\$5,400.00	\$5,400.00
Nebraska City, Neb., 7s.....	17,160.00	15,600.00	15,600.00
Anthony, Kan., 10s.....	3,150.00	3,000.00	3,180.00
Keene, N. H., 5s.....	3,150.00	3,000.00	3,000.00
Golden, Col., 8s.....	5,250.00	5,000.00	5,000.00
	\$34,110.00	\$32,000.00	\$32,180.00
COUNTY.			
Leavenworth, Kan., 6s.....	\$7,035.00	\$6,700.00	\$6,700.00
Lyon, Io., 6s.....	21,939.00	21,300.00	22,079.00
Lake, Col., 8s.....	7,500.00	15,000.00	15,000.00
Pueblo, Col., 7s.....	14,700.00	14,000.00	14,000.00
Bernalillo, N. M., 6s.....	5,000.00	5,000.00	4,850.00
Roberts, Dak., 8s.....	5,250.00	5,000.00	5,000.00
Bingham, Id., 8s.....	10,500.00	10,000.00	10,000.00
Oneida, Id., 8s.....	7,210.00	7,000.00	7,000.00
Socorro, N. M., 6s.....	10,000.00	10,000.00	9,500.00
	\$89,134.00	\$94,000.00	\$94,129.00
TOWNSHIP.			
Grant, Io., 6s.....	\$3,500.00	\$3,500.00	\$3,500.00
Garfield, Io., 7s.....	8,500.00	8,500.00	8,500.00
	\$12,000.00	\$12,000.00	\$12,000.00
SCHOOL DISTRICT.			
Milford, Montgomery County, Io., 6½s	\$2,300.00	\$2,300.00	\$2,300.00
Wichita City, Kan., 6s.....	4,160.00	4,000.00	4,045.00
Lancaster County, No. 107, Neb., 7s.	515.00	500.00	515.00
Rice County, No. 69, Kan., 6s.....	10,000.00	10,000.00	10,300.00
Le Mars, Io., 6s.....	10,000.00	10,000.00	10,175.00
Blanchard, Io., 6s.....	5,000.00	5,000.00	5,087.50
Lincoln, Neb., 6s.....	20,000.00	20,000.00	20,800.00
Chariton, Lucas County, Io., 6s. ...	2,000.00	2,000.00	2,080.00
Filmore, No. 16, Neb., 6s.....	1,350.00	1,350.00	1,420.00
Morris County, No. 27, Kan., 6s.....	300.00	300.00	300.00
South Liberty, Page County, Io., 6s	1,000.00	1,000.00	1,000.00
Gravity, Taylor County, Io., 6s.....	2,300.00	2,300.00	2,300.00
Chippewa, Chippewa County, No. 21, Minn., 6s.	3,600.00	3,600.00	3,600.00
Barton County, No. 3, Mo., 9s.....	700.00	700.00	700.00
Morris County, No. 33, Kan., 6s.....	450.00	450.00	450.00
Harton, Page County, No. 10, Neb., 7s	205.00	205.00	205.00
Grand Forks, Dak., 7s.....	5,000.00	5,000.00	5,250.00
York County, No. 26, Neb., 7s.....	312.00	312.00	312.00
Rock Rapids, Lyon County, Io., 7s..	9,500.00	9,500.00	9,750.00
Buffalo County, No. 65, Neb., 7s....	200.00	200.00	200.00
Nuckolls County, No. 41, Neb., 7s....	250.00	250.00	250.00
<i>Amount carried forward.....</i>	\$79,142.00	\$78,967.00	\$81,039.50

SCHEDULE OF BONDS AND STOCKS OF THE KEENE FIVE-CENTS
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT. — <i>Continued.</i>			
<i>Amount brought forward.....</i>	\$79,142.00	\$78,967.00	\$81,039.50
York County, No. 42, Neb., 7s.....	280.00	280.00	280.00
Riverton, Io., 6s.....	2,000.00	2,000.00	2,000.00
Harlan, Page County, No. 6, Neb., 6s	1,000.00	1,000.00	1,000.00
Nemaha, No. 8, Neb., 7s.....	100.00	100.00	100.00
Rock, Lyon County, Io., 6s.....	500.00	500.00	500.00
Las Animas, Col., 7s.....	10,000.00	10,000.00	10,000.00
Carl, Township Union No. 1, Io., 6s.	300.00	300.00	300.00
	\$93,322.00	\$93,147.00	\$95,219.50
MISCELLANEOUS.			
Manhattan Beach Imp. Co., 7s.....	\$9,000.00	\$10,000.00	\$10,000.00
Iowa Loan & Trust Co. deben., 6s...	40,400.00	40,400.00	40,400.00
Lombard Investment Co. deben., 6s	40,900.00	40,900.00	40,900.00
"Kansas City Times" Co., 6s.....	13,600.00	13,600.00	13,600.00
El Dorado water bonds, 6s.....	5,000.00	5,000.00	4,850.00
Muscatine Mortgage & Trust Co. debentures, 6s.....	10,000.00	10,000.00	10,000.00
Johnson Loan & Trust Co. debentures, 6s.....	10,000.00	10,000.00	10,000.00
Lyon County warrants, 7s.....	1,500.00	1,500.00	1,500.00
Adams County warrants, Col., 8s...	3,800.00	3,800.00	3,800.00
Montrose, Col., 10s.....	7,504.28	7,504.28	7,504.28
Garfield County warrants, Col., 10s	3,000.00	3,000.00	3,000.00
Wichita City R. R., Kan., 7s.....	4,725.00	4,500.00	4,500.00
Kansas Investment Co., 6½s.....	5,000.00	5,000.00	5,000.00
Garfield warrants, Col., 10s.....	5,000.00	5,000.00	5,000.00
	\$159,429.28	\$160,204.28	\$160,054.28
STOCKS.			
BANK.			
Keene National, Keene.....	\$6,240.00	\$3,900.00	\$4,187.50
Ashuelot National, Keene.....	11,200.00	8,000.00	9,946.25
Citizens', Keene.....	13,000.00	10,000.00	11,500.00
Winchester National, Winchester..	14,630.00	13,300.00	15,510.00
Blackstone National, Boston.....	4,218.00	3,800.00	3,800.00
National B'nk of Commerce, Boston	2,500.00	2,000.00	1,981.25
National Bank of Republic, Boston	7,560.00	5,400.00	6,966.00
Merchants' Nat., Kansas City, Mo...	8,400.00	8,000.00	8,800.00
Lancaster National, Lancaster, N.H.	11,300.00	10,000.00	10,000.00
Citizens', Wichita, Kan.....	8,000.00	8,000.00	8,000.00
First Nat. Bank of Winfield, Kan...	11,000.00	10,000.00	10,000.00
	\$98,048.00	\$82,400.00	\$90,691.00
RAILROAD.			
Pittsburg, Ft. Wayne & Chicago....	\$21,900.00	\$15,000.00	\$15,231.25
Omaha & St. Paul.....	16,800.00	15,000.00	14,968.75
Atchison, Topeka & Santa Fé.....	10,600.00	10,000.00	8,581.25
	\$49,300.00	\$40,000.00	\$38,781.25
MISCELLANEOUS.			
Iowa Loan & Trust Co.....	\$25,000.00	\$20,000.00	\$20,000.00
New England Mortgage Security Co.	10,000.00	10,000.00	10,000.00
<i>Amount carried forward.....</i>	\$35,000.00	\$30,000.00	\$30,000.00

SCHEDULE OF BONDS AND STOCKS OF THE KEENE FIVE-CENTS
SAVINGS BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
<i>MISCELLANEOUS. — Continued.</i>			
<i>Amount brought forward.....</i>	\$35,000.00	\$30,000.00	\$30,000.00
Anglo-American Land Mortgage & Agency Co.....	19,910.12	19,910.12	19,910.12
Muscatine Mortgage & Trust Co....	12,000.00	10,000.00	10,000.00
Minnesota Loan & Trust Co.....	9,960.00	8,300.00	8,550.00
Nebraska Loan & Trust Co.....	6,000.00	5,000.00	5,000.00
Davidson Investment Co.....	15,000.00	15,000.00	15,000.00
Winfield Mortgage & Trust Co.....	5,000.00	5,000.00	5,000.00
Kansas Loan & Trust Co	5,000.00	5,000.00	5,000.00
	\$107,870.12	\$98,210.12	\$98,460.12

LACONIA SAVINGS BANK. — LACONIA.

ALBERT G. FOLSOM, *President*.EDMUND LITTLE, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$867,622.04		\$867,622.04
Guaranty fund.....	35,000.00		35,000.00
Surplus	31,268.43		31,268.43
Premium on stocks and bonds	26,165.00		
	\$960,055.47		\$933,890.47

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$282,417.90	\$282,417.90	\$282,417.90
Loans secured by local real estate.....	216,559.50	216,559.50	216,559.50
Loans on personal security.....	68,957.55	68,957.55	68,957.55
Loans on collateral security.....	42,219.00	42,219.00	42,219.00
United States bonds.....	32,375.00	25,000.00	25,000.00
State bonds.....	5,840.00	5,600.00	5,600.00
County, city, town, and district bonds.....	98,432.55	92,227.55	92,227.55
Railroad bonds.....	54,890.00	51,800.00	48,400.00
Railroad stock.....	5,400.00	5,000.00	5,000.00
Bank stock.....	27,245.00	23,300.00	23,300.00
Miscellaneous bonds.....	92,260.00	92,000.00	92,000.00
Miscellaneous stocks.....	6,250.00	5,000.00	5,000.00
Balance on deposit in Laconia National Bank.....	13,614.32	13,614.32	13,614.32
Real estate acquired or held by foreclosure.....	9,200.00	9,200.00	9,200.00
Cash on hand.....	4,394.65	4,394.65	4,394.65
	\$960,055.47	\$937,290.47	\$933,890.47

Statement of earnings for the year ending Jan. 8, 1887.

Stock charged on	\$5,000.00	
Earnings for the year 1886	53,721.97	
		\$58,721.97
Deduct expenses for 1886	\$2,051.42	
Deduct state tax for 1886	7,677.90	
Deduct shrinkage in real estate	8,391.75	
Deduct items charged off	4,258.70	
		22,379.77
Net profits to be accounted for		\$36,342.20

Dividend of 2 per cent, July, 1886 . . .	\$15,721.05	
Dividend of 2½ per cent, January, 1887 . . .	20,101.20	
Balance of profits for 1886 . . .	519.95	
Net profits (as above) accounted for . . .	—————	\$36,342.20
Guaranty fund Jan. 1, 1886 . . .	\$30,000.00	
Other undivided profits Jan. 1, 1886 . . .	26,754.58	
Total surplus profits Jan. 1, 1886 . . .	—————	\$56,754.58
Guaranty fund Jan. 1, 1887 . . .	\$35,000.00	
Other undivided profits Jan. 1, 1887 . . .	22,274.53	
Total surplus profits Jan. 1, 1887 . . .	—————	57,274.53
		<hr/>
Increase for the year 1886		\$519.95

Surplus profits — Jan. 1, 1883, \$24,701.71 ; Jan. 1, 1884, \$38,800.84 ; Jan. 1, 1885, \$47,920.82 ; Jan. 1, 1886, \$56,754.58 ; Jan. 1, 1887, \$57,274.53.

Incorporated 1831. Charter perpetual.

Examination completed March 14, 1887, by Chas. E. Cooper and Geo. E. Gage.

Vice-President — None.

Trustees — Daniel A. Tilton, James S. Hoit, Ellery A. Hibbard, Ebenezer Stevens, Almon C. Leavitt, Noah L. True, W. L. Melcher, Samuel B. Smith, Albert G. Folsom.

Treasurer's bond \$70,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, June 1, 1886. Sureties of bond are able to respond. Bond deposited with E. A. Hibbard for safe-keeping.

Annual compensation of treasurer, \$1,500.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$2,500 ; as surety, \$9,200, by unanimous consent of trustees.

Loans and investments are made by A. G. Folsom, D. A. Tilton, W. L. Melcher.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 2,372 ; increase since last examination by Bank Commissioners, 99.

Amount of deposits, \$867,622.04 ; increase since last examination, \$62,602.50.

None of bank's assets in Boston for safe-keeping.

Number of single loans of \$1,000 or less to separate parties in the State, 145.

Total amount of loans, \$610,153.95.

Total amount of stocks and bonds, \$305,727.55.

Largest amount loaned to any individual, corporation, or company, \$60,000.

Amount of assets with interest unpaid for over six months, \$19,500.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$395,136.05.

Total amount loaned or invested in New England, \$406,236.05.

Total amount loaned or invested out of New England, \$509,645.45.

Total amount loaned or invested drawing 4 per cent interest, \$30,000.

Total amount loaned or invested drawing 5 per cent interest, \$52,533.50.

Total amount loaned or invested drawing 5½ per cent interest, \$10,000.

Total amount loaned or invested drawing 6 per cent interest, \$447,980.10.

Total amount loaned or invested drawing 6½ per cent interest, \$8,050.

Total amount loaned or invested drawing 7 per cent interest, \$306,562.90.

Total amount loaned or invested drawing 8 per cent interest, \$49,405.

Total amount loaned or invested drawing 10 per cent interest, \$5,500.

Dividends for the year ending Dec. 31, 1886: July, 1886, 2 per cent, \$15,721.05; January, 1887, 2½ per cent, \$20,101.20.

No extra dividend declared.

Total expense of institution for the twelve months ending March 14, 1887, \$2,018.97.

Amount charged off as losses since last examination, \$11,669.73.

Amount of other taxes, \$187.

Amount of deposits received since last examination, \$159,709.26.

Amount of dividends declared since last examination, \$35,822.25.

Amount paid on account of deposits since last examination, \$132,929.01.

SCHEDULE OF BONDS AND STOCKS OF THE LACONIA SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s.....	\$32,375.00	\$25,000.00	\$25,000.00
STATE.			
New Hampshire, 6s.....	\$690.00	\$600.00	\$600.00
New Mexico, 7s.....	5,150.00	5,000.00	5,000.00
	\$5,840.00	\$5,600.00	\$5,600.00
RAILROAD.			
Boston, Concord & Montreal, 6s....	\$1,400.00	\$1,400.00	\$1,400.00
Chicago, Burlington & Quincy, 7s..	6,475.00	5,000.00	5,000.00
Consolidated (of Vermont), 5s.....	4,250.00	5,000.00	3,000.00
California Southern (Guaranteed by Atchison, Topeka & Santa Fé), 6s.	5,600.00	5,000.00	5,000.00
Leavenworth, Topeka & South-western, 4s.....	4,000.00	5,000.00	3,600.00
Terre Haute & Southeastern, 7s....	5,500.00	5,000.00	5,000.00
Eastern (of Massachusetts), 6s.....	3,840.00	3,000.00	3,000.00
Boston, Concord & Montreal, 7s....	21,300.00	20,000.00	20,000.00
Burlington, Cedar Rapids & North-ern (of Iowa), 5s.....	2,525.00	2,400.00	2,400.00
	\$54,890.00	\$51,800.00	\$48,400.00
COUNTY.			
Bent, Col., 8s.....	\$7,000.00	\$7,000.00	\$7,000.00
Miami, Kan., 7s.....	3,090.00	3,000.00	3,000.00
Osage, Kan., 7s.....	5,000.00	5,000.00	5,000.00
Lancaster, Neb., 10s.....	2,750.00	2,500.00	2,500.00
Park, Ind., 6s.....	5,000.00	5,000.00	5,000.00
	\$22,840.00	\$22,500.00	\$22,500.00
CITY.			
Topeka scrip, Kan., 6s.....	\$1,177.55	\$1,177.55	\$1,177.55
Hutchinson, Kan., 7s.....	5,200.00	5,000.00	5,000.00
Portsmouth, O., 7s.....	2,080.00	2,000.00	2,000.00
Dayton, O., 6s.....	6,900.00	6,000.00	6,000.00
Kansas City, Mo., 8s.....	6,250.00	5,000.00	5,000.00
Cincinnati, O., 7s.....	3,210.00	3,000.00	3,000.00
Arkansas City, Kan., 8s.....	5,250.00	5,000.00	5,000.00
East Saginaw, Mich., 8s.....	5,000.00	5,000.00	5,000.00
Cincinnati, O., 5s.....	11,400.00	10,000.00	10,000.00
Cleveland, O., 5s.....	6,600.00	6,000.00	6,000.00
Pueblo, Col., 8s.....	3,000.00	3,000.00	3,000.00
	\$56,067.55	\$51,177.55	\$51,177.55
TOWNSHIP.			
Kansas, Mo., 7s.....	\$5,850.00	\$5,000.00	\$5,000.00
SCHOOL DISTRICT.			
Cherokee County, No. 76, Kan., 6s..	\$1,000.00	\$1,000.00	\$1,000.00
Polk County, No. 1, Indp., 8s.....	3,000.00	3,000.00	3,000.00
Independent of Perry, Io., 6s.....	4,000.00	4,000.00	4,000.00
Independent of Appleton, Minn., 8s	3,000.00	3,000.00	3,000.00
Kittson County, No. 2, Minn., 10s....	1,655.00	1,550.00	1,550.00
Vernon County, No. 50, Mo., 7s.....	1,020.00	1,000.00	1,000.00
	\$13,675.00	\$13,550.00	\$13,550.00

SCHEDULE OF BONDS AND STOCKS OF THE LACONIA SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
Knoxville Water-works, Tenn., 6s..	\$5,100.00	\$5,000.00	\$5,000.00
Ottumwa Water-works, Io., 6s.....	8,160.00	8,000.00	8,000.00
Atlantic Water-works, Io., 6s.....	5,000.00	5,000.00	5,000.00
Homer Water-works, N. Y., 6s.....	5,000.00	5,000.00	5,000.00
Laconia & Lake Village Water-works, N. H., 5s.....	10,000.00	10,000.00	10,000.00
Owego Water-works, N. Y., 6s.....	5,000.00	5,000.00	5,000.00
City Water-works Co., Omaha, Neb., 6s.....	6,000.00	6,000.00	6,000.00
New Hampshire Trust Co. debentures, N. H., 6s.....	5,000.00	5,000.00	5,000.00
Parsons Water Co., Kan., 6s.....	3,000.00	3,000.00	3,000.00
Nebraska Loan & Trust Co. debentures, 6s.....	5,000.00	5,000.00	5,000.00
Appleton Water-works, Wis., 6s....	5,000.00	5,000.00	5,000.00
Tiffin Water-works, O., 6s.....	5,000.00	5,000.00	5,000.00
Northwestern Gas-light & Coke Co., Evanston, Ill., 6s.....	5,000.00	5,000.00	5,000.00
Springfield Water Co., Mo., 6s.....	10,000.00	10,000.00	10,000.00
Lombard Investment Co., 6s.....	5,000.00	5,000.00	5,000.00
Iowa Loan & Trust Co., 6s.....	5,000.00	5,000.00	5,000.00
	\$92,260.00	\$92,000.00	\$92,000.00
STOCKS.			
BANK.			
Laconia National, N. H.....	\$10,080.00	\$9,000.00	\$9,000.00
Shawmut National, Boston.....	1,160.00	1,000.00	1,000.00
Merchants' National, Boston.....	2,800.00	2,000.00	2,000.00
Boston National, Boston.....	720.00	600.00	600.00
National Bank Commerce, Boston.	1,875.00	1,500.00	1,500.00
National State Capital, Concord....	2,625.00	1,500.00	1,500.00
Citizens' National, Tilton.....	5,985.00	5,700.00	5,700.00
Clark County Bank, Osceola, Io....	2,000.00	2,000.00	2,000.00
	\$27,245.00	\$23,300.00	\$23,300.00
RAILROAD.			
Eastern, N. H.....	\$5,400.00	\$5,000.00	\$5,000.00
MISCELLANEOUS.			
Iowa Loan & Trust Co.....	\$6,250.00	\$5,000.00	\$5,000.00

LAKE VILLAGE SAVINGS BANK. — LAKE VILLAGE.

OLIVER GOSS, *President.*THOMAS HAM, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$227,200.24		\$227,200.24
Guaranty fund.....	7,434.82		7,434.82
Surplus	22,330.57		22,330.57
Premium on stocks and bonds.	3,699.66		
	\$260,665.29		\$256,965.63

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$155,250.00	\$155,250.00	\$155,250.00
Loans secured by local real estate.	35,805.53	35,805.53	35,805.53
Loans on personal security.....	11,750.70	11,750.70	11,750.70
Loans on collateral security.....	2,693.00	2,693.00	2,693.00
State bonds.....	111.00	100.00	100.00
County, city, town, and district bonds.....	23,660.00	22,000.00	20,982.34
Railroad bonds.....	4,257.00	3,800.00	3,765.00
Bank stock.	9,049.00	8,200.00	8,630.00
Miscellaneous bonds	5,750.00	5,650.00	5,650.00
Miscellaneous stocks.....	2,000.00	2,000.00	2,000.00
Balance on deposit in Laconia Na- tional Bank.....	3,284.22	3,284.22	3,284.22
Real estate acquired or held by foreclosure.....	2,209.59	2,209.59	2,209.59
Bank fixtures.....	1,275.00	1,275.00	1,275.00
Cash on hand.....	3,570.25	3,570.25	3,570.25
	\$260,665.29	\$257,588.29	\$256,965.63

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$15,352.94
Deduct expenses for 1886	\$1,783.98
Deduct state tax for 1886	1,802.87
	<u>3,586.85</u>
Net profits to be accounted for	\$11,766.09
Dividend of 5 per cent, 1886	\$9,128.44
Carried to guaranty fund	1,091.10
Balance of profits for 1886	1,546.55
Net profits (as above) accounted for	<u>\$11,766.09</u>

Guaranty fund Jan. 1, 1886	\$6,373.42	
Other undivided profits Jan. 1, 1886	16,131.38	
Total surplus profits Jan. 1, 1886	—————	\$22,504.80
Guaranty fund Jan. 1, 1887	\$7,434.82	
Other undivided profits Jan. 1, 1887	16,866.63	
Total surplus profits Jan. 1, 1887	—————	24,301.45
		<hr/>
Increase for the year 1886		\$1,796.65

Surplus profits — Jan. 1, 1883, \$8,510.70 ; Jan. 1, 1884, \$10,573.25 ; Jan. 1, 1885, \$17,876.06 ; Jan. 1, 1886, \$22,475.10 ; Jan. 1, 1887, \$24,301.45.

Incorporated 1867. Charter perpetual.

Examination completed March 16, 1887, by George E. Gage.

Vice-President — J. S. Crane.

Trustees — Oliver Goss, Samuel C. Clark, John J. Morrill, John S. Crane, M. R. Elkins, Stephen B. Cole, Thomas Ham, John J. Sanborn, Joseph L. Odell, Moses Sargent, Jr., Geo. L. Sleeper, B. F. Drake, William H. Pepper.

Treasurer's bond \$33,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, April 1, 1876. Sureties of bond are able to respond. Bond deposited in B. J. Cole Manuf'g Co.'s safe for safe-keeping.

Annual compensation of treasurer, \$600.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by Oliver Goss, M. R. Elkins, Thos. Ham, J. S. Crane.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 825 ; increase since last examination by Bank Commissioners, 80.

Amount of deposits, \$227,200.24 ; increase since last examination, \$38,530.06.

Number of single loans of \$1,000 or less to separate parties in the State, 113.

Total amount of loans, \$205,499.23.

Total amount of stocks and bonds, \$41,127.34.

Largest amount loaned to any individual, corporation, or company, \$5,000.

Amount of assets with interest unpaid for over six months, \$5,483.14.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$62,463.83.

Total amount loaned or invested in New England, \$66,228.83.

Total amount loaned or invested out of New England, \$183,882.34.

Total amount loaned or invested drawing 6 per cent interest,
\$79,771.23.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$9,000.

Total amount loaned or invested drawing 7 per cent interest,
\$138,928.

Total amount loaned or invested drawing 8 per cent interest,
\$9,550.

Total amount loaned or invested drawing 10 per cent interest,
\$10,000.

Amount invested from which no income has been received during
the year, \$3,484.59.

Dividends for the year ending Dec. 31, 1886: 5 per cent, 1886,
\$9,128.44.

Total expense of institution for the twelve months ending March
16, 1887, \$1,783.98.

Nothing charged off as losses since last examination.

Amount of other taxes, \$17.85.

Amount of deposits received since last examination, \$63,573.91.

Amount of dividends declared since last examination, \$9,128.44.

Amount paid on account of deposits since last examination,
\$34,172.29.

SCHEDULE OF BONDS AND STOCKS OF THE LAKE VILLAGE SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Boston, Concord & Montreal, 7s....	\$3,405.00	\$3,000.00	\$3,000.00
Boston, Concord & Montreal, 6s....	852.00	800.00	765.00
	\$4,257.00	\$3,800.00	\$3,765.00
CITY.			
Muskegon, Mich., 8s.....	\$4,200.00	\$4,000.00	\$3,947.50
Muscatine, Io., 6s	5,250.00	5,000.00	4,245.00
Kansas City, Mo., 10s	3,900.00	3,000.00	3,000.00
Litchfield, Ill., 10s.....	2,000.00	2,000.00	2,000.00
Quincy, Ill., 6s.....	2,100.00	2,000.00	1,844.00
	\$17,450.00	\$16,000.00	\$15,036.50
STATE.			
New Hampshire, 6s.....	\$111.00	\$100.00	\$100.00
COUNTY.			
Pueblo, Col., 10s	\$3,150.00	\$3,000.00	\$2,860.01
TOWNSHIP.			
Wade, Ill., 8s.....	\$3,060.00	\$3,000.00	\$3,085.83
MISCELLANEOUS.			
Brainerd Water Co., 7s.....	\$1,100.00	\$1,000.00	\$1,000.00
New England Loan and Trust Co. debentures, 7s.....	4,650.00	4,650.00	4,650.00
	\$5,750.00	\$5,650.00	\$5,650.00
STOCKS.			
BANK.			
Laconia National.....	\$6,160.00	\$5,500.00	\$5,750.00
Lake National, Wolfeborough.....	2,889.00	2,700.00	2,880.00
	\$9,049.00	\$8,200.00	\$8,630.00
MISCELLANEOUS.			
Kansas Loan and Trust Co., Topeka	\$2,000.00	\$2,000.00	\$2,000.00

LANCASTER SAVINGS BANK.—LANCASTER.

JAMES W. WEEKS, *President.*HENRY O. KENT, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$310,260.61		\$310,260.61
Guaranty fund.....	2,463.36		2,463.36
Surplus.....	7,340.89		7,340.89
Premium on stocks and bonds.....	2,774.42		
	<u>\$322,839.28</u>		<u>\$320,064.86</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$141,475.36	\$141,475.36	\$141,475.36
Loans secured by local real estate.	28,251.91	28,251.91	28,251.91
Loans on personal security.....	5,277.87	5,277.87	5,277.87
Loans on collateral security.....	6,627.83	6,627.83	6,627.83
State bonds.....	3,090.00	3,000.00	3,000.00
County, city, town, and district bonds.....	82,999.29	78,719.29	82,996.66
Railroad bonds.....	20,390.00	18,000.00	19,055.88
Railroad stock.....	3,157.50	3,000.00	2,520.00
Bank stock.....	2,260.00	2,000.00	2,000.00
Miscellaneous bonds.....	12,380.00	12,000.00	12,154.83
Miscellaneous stocks.....	2,425.00	2,200.00	2,200.00
Balance on deposit in Maverick Na- tional Bank, Boston.....	10,936.40	10,936.40	10,936.40
Bank fixtures.....	700.00	700.00	700.00
Cash on hand.....	2,868.12	2,868.12	2,868.12
	<u>\$322,839.28</u>	<u>\$315,056.78</u>	<u>\$320,064.86</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$19,602.55
Deduct expenses for 1886	\$1,961.68
Deduct state tax for 1886	2,703.09
Deduct items charged off	595.53
	<u>5,260.30</u>
Net profits to be accounted for	\$14,342.25

Dividend of 2 per cent, July 1, 1886	\$5,193.12
Dividend of 2 per cent, Jan. 1, 1887	5,773.31

Carried to guaranty fund	\$924.14	
Balance of profits for 1886	2,451.68	
Net profits (as above) accounted for	—————	\$14,342.25
Guaranty fund Jan. 1, 1886	\$2,134.75	
Other undivided profits Jan. 1, 1886	1,062.08	
Total surplus profits Jan. 1, 1886	—————	\$3,196.83
Guaranty fund Jan. 1, 1887	\$2,463.36	
Other undivided profits Jan. 1, 1887	4,109.29	
Total surplus profits Jan. 1, 1887	—————	6,572.65
		<hr/>
Increase for the year 1886		\$3,375.82
Surplus profits — Jan. 1, 1886, \$3,196.83 ; Jan. 1, 1887, \$6,- 572.65.		

Incorporated 1868. Charter perpetual.

Examination completed Dec. 9, 1886, by George E. Gage.

Trustees — H. O. Kent, E. V. Cobleigh, S. H. LeGro, J. W. Weeks, P. J. Noyes, E. Mitchell, Jr., E. R. Kent, J. H. Curtis, Geo. S. Stockwell.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Feb. 20, 1886. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Frances E. LeGro.

Annual compensation of treasurer, \$1,000.

Annual compensation of clerk, \$400.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing; as surety, \$100, by unanimous consent of trustees.

Loans and investments are made by H. O. Kent and E. V. Cobleigh.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 1,283; increase since last examination by Bank Commissioners, 220.

Amount of deposits, \$310,260.61; increase since last examination, \$61,209.51.

Amount of bank's assets in Boston for safe-keeping, \$158,000.

Number of single loans of \$1,000 or less to separate parties in the State, 89.

Total amount of loans, \$305,560.34.

Total amount of stocks and bonds, \$117,508.08.

Largest amount loaned to any individual, corporation, or company, \$6,000.

Amount of assets with interest unpaid for over six months, \$7,918.74.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$58,389.41.

Total amount loaned or invested in New England, \$66,426.13.

Total amount loaned or invested out of New England, \$240,134.21.

Total amount loaned or invested drawing 4 per cent interest, \$3,300.

Total amount loaned or invested drawing 5 per cent interest, \$3,000.

Total amount loaned or invested drawing 6 per cent interest, \$87,846.02.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$8,850.

Total amount loaned or invested drawing 7 per cent interest, \$132,880.88.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$2,000.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$930.65.

Total amount loaned or invested drawing 8 per cent interest, \$58,344.71.

Total amount loaned or invested drawing 9 per cent interest, \$900.

Total amount loaned or invested drawing 10 per cent interest, \$2,000.

Amount invested from which no income has been received during the year, \$500.

Dividends for the year ending Dec. 31, 1886: July 1, 1886, \$5,-193.12; Jan. 1, 1887, \$5,773.31.

No extra dividend declared.

Total expense of institution for the twelve months ending Dec. 9, 1886, \$1,944.22.

Amount charged off as losses since last examination, \$2,674.20.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$111,219.95.

Amount of dividends declared since last examination, \$9,969.86.

Amount paid on account of deposits since last examination, \$59,980.30.

SCHEDULE OF BONDS AND STOCKS OF THE LANCASTER SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Kansas Pacific, 6s.....	\$3,450.00	\$3,000.00	\$3,146.25
New York & New England, 7s.....	3,810.00	3,000.00	3,336.80
Boston, Concord & Montreal, 6s	2,130.00	2,000.00	2,175.00
New York & New England, 6s.....	5,850.00	5,000.00	5,036.72
Sonora, 7s.....	5,150.00	5,000.00	5,361.11
	\$20,390.00	\$18,000.00	\$19,055.88
CITY.			
Moorhead, Minn., 7s	\$15,260.00	\$14,000.00	\$15,367.85
Fargo, Dak., 7s.....	12,960.00	12,000.00	13,175.60
Fargo, Dak., 7s.....	3,240.00	3,000.00	3,351.67
Toledo, O., 8s.....	1,090.00	1,000.00	1,037.33
Arkansas City, Kan., 7s	2,100.00	2,000.00	2,123.34
St. Joseph, Mo., 4s.....	3,300.00	3,300.00	3,047.73
Gardner, Mass., 6s.....	3,000.00	3,000.00	3,087.50
Toledo, O., 7 3-10s.	2,160.00	2,000.00	2,343.25
Topeka scrip.....	419.29	419.29	419.29
	\$43,529.29	\$40,719.29	\$43,953.56
COUNTY.			
Colfax, Neb., 10s.....	\$2,500.00	\$2,000.00	\$2,407.77
Jackson, Mo., 8s.....	9,600.00	8,000.00	9,346.63
Clay, Minn., 7s.....	6,480.00	6,000.00	6,537.17
Bingham Funding, 8s.....	5,350.00	5,000.00	5,350.00
Bingham Court-house, 7s.....	3,090.00	3,000.00	3,090.00
Oneida, Id., 8s.....	5,300.00	5,000.00	5,300.00
Saguache, Col., 7s	5,150.00	5,000.00	5,000.00
Borough of Towanda, 6s.....	2,000.00	2,000.00	2,011.53
	\$39,470.00	\$36,000.00	\$39,043.10
STATE.			
New Mexico, 7s.....	\$3,090.00	\$3,000.00	\$3,000.00
MISCELLANEOUS.			
Moorhead Bridge, 7s....	\$2,180.00	\$2,000.00	\$2,154.83
Salina Water-works, 6s.....	4,200.00	4,000.00	4,000.00
New Hampshire Trust Co., 6s.....	6,000.00	6,000.00	6,000.00
	\$12,380.00	\$12,000.00	\$12,154.83
STOCKS.			
BANK.			
Lancaster National, Lancaster.....	\$2,260.00	\$2,000.00	\$2,000.00
RAILROAD.			
Boston, Concord & Montreal	\$3,157.50	\$3,000.00	\$2,520.00
MISCELLANEOUS.			
Lombard Investment Co.....	\$1,125.00	\$900.00	\$900.00
Granite State Fire Insurance Co....	500.00	500.00	500.00
New Hampshire Trust Co.....	800.00	800.00	800.00
	\$2,425.00	\$2,200.00	\$2,200.00

LEBANON SAVINGS BANK. — LEBANON.

WILLIAM S. ELA, *Pres.*EDWARD A. KENDRICK, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$769,409.85		\$769,409.85
Guaranty fund	22,400.00		22,400.00
Surplus	49,540.58		49,540.58
Premium on stocks and bonds.....	7,431.50		
	<u>\$848,781.93</u>		<u>\$841,350.43</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$499,769.17	\$499,769.17	\$499,769.17
Loans secured by local real estate..	66,567.37	66,567.37	66,567.37
Loans secured by personal security	1,325.00	1,325.00	1,325.00
Loans on personal security (Western)	7,847.00	7,847.00	7,847.00
Loans on collateral security.....	7,799.00	7,799.00	7,799.00
Loans on collateral security (Western)	5,000.00	5,000.00	5,000.00
Western city loans	131,760.00	131,760.00	131,760.00
County, city, town, and district bonds	29,385.00	26,700.00	26,209.00
Railroad bonds.....	26,637.50	25,300.00	24,950.00
Bank stock.....	37,360.00	32,300.00	34,792.00
Miscellaneous bonds.....	9,448.54	9,448.54	9,448.54
Balance on deposit in Shawmut National Bank.....	16,467.52	16,467.52	16,467.52
Real estate acquired or held by foreclosure.....	3,386.01	3,386.01	3,386.01
Bank fixtures (safe).....	1,000.00	1,000.00	1,000.00
Cash on hand.....	5,029.82	5,029.82	5,029.82
	<u>\$848,781.93</u>	<u>\$839,699.43</u>	<u>\$841,350.43</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$45,976.36
Deduct expenses for 1886	\$2,321.29
Deduct state tax for 1886	6,901.38
Deduct items charged off	562.73
	<u>9,785.40</u>
Net profits to be accounted for	\$36,190.96

Dividend of 2 per cent, April 1, 1886	. \$13,681.52
Dividend of 2 per cent, Oct. 1, 1886	. 14,060.92
Carried to guaranty fund	. 3,409.68
Balance of profits for 1886	. 5,038.84
Net profits (as above) accounted for	. ———— \$36,190.96
Guaranty fund Jan. 1, 1886	. \$19,433.65
Other undivided profits Jan. 1, 1886	. 32,666.82
Total surplus profits Jan. 1, 1886	. ———— \$52,100.47
Guaranty fund Jan. 1, 1887	. \$22,400.00
Other undivided profits Jan. 1, 1887	. 34,017.67
Total surplus profits Jan. 1, 1887	. ———— 56,417.67

Increase for the year 1886 \$4,317.20

Surplus profits — Jan. 1, 1883, \$19,853.57 ; Jan. 1, 1884, \$27,083.78 ; Jan. 1, 1885, \$36,454.13 ; Jan. 1, 1886, \$52,100.47 ; Jan. 1, 1887, \$56,417.67.

Incorporated 1869. Charter perpetual.

Examination completed March 8, 1887, by Geo. E. Gage and Chas. E. Cooper.

Vice-Presidents — Solon A. Peck and Lewis C. Pattee.

Trustees — William S. Ela, Lewis C. Pattee, Daniel B. Emerson, Bradley True, Charles M. Hildreth, Nathan B. Stearns, Gilman C. Whipple, David W. Marston, Martin V. Purmort, Solon A. Peck, Richard W. Craigin, Frederic L. Owen, William S. Carter, Frank B. Kendrick, Edward A. Kendrick.

Treasurer's bond \$55,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, June 2, 1881. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Georgie M. Dudley.

Annual compensation of treasurer, \$1,200.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing ; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by committee.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 2,470 ; increase since last examination by Bank Commissioners, 100.

Amount of deposits, \$769,409.85 ; increase since last examination, \$56,698.40.

Number of single loans of \$1,000 or less to separate parties in the State, 67.

Total amount of loans, \$720,067.54.

Total amount of stocks and bonds, \$58,399.54.

Largest amount loaned to any individual, corporation, or company, \$20,000.

Amount of assets with interest unpaid for over six months, \$9,333.55.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$129,577.38.

Total amount loaned or invested in New England, \$132,577.38.

Total amount loaned or invested out of New England, \$685,624.71.

Total amount loaned or invested drawing 5 per cent interest, \$5,000.

Total amount loaned or invested drawing 6 per cent interest, \$195,806.31.

Total amount loaned or invested drawing 6½ per cent interest, \$12,675.

Total amount loaned or invested drawing 7 per cent interest, \$504,612.

Total amount loaned or invested drawing 7½ per cent interest, \$4,450.

Total amount loaned or invested drawing 8 per cent interest, \$85,524.17

Total amount loaned or invested drawing 10 per cent interest, \$948.54.

Amount invested from which no income has been received during the year, \$9,186.01.

Dividends for the year ending Dec. 31, 1886: April 1, 1886, 2 per cent, \$13,681.52; Oct. 1, 1886, 2 per cent, \$14,060.92.

Extra dividend of 2 per cent, amounting to \$11,032.90, declared Nov. 1, 1886.

Total expense of institution for the twelve months ending March 8, 1887, \$2,476.50.

Amount of other taxes, \$149.14.

Amount of deposits received since last examination, \$162,738.20.

Amount of dividends declared since last examination, \$38,775.14.

Amount paid on account of deposits since last examination, \$144,800.88.

SCHEDULE OF BONDS AND STOCKS OF THE LEBANON SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Midland, N. J., 6s.....	\$11,300.00	\$10,000.00	\$9,650.00
Central Iowa, 7s	4,575.00	5,000.00	5,000.00
Connecticut & Passumpsic, 7s.....	3,420.00	3,000.00	3,000.00
New York, Susquehanna & Western, 5s.....	4,625.00	5,000.00	5,000.00
New York, Susquehanna & Western scrip.....	277.50	300.00	300.00
Kansas City, Emporia & Southern, 7s..	1,220.00	1,000.00	1,000.00
Crowley, Leavenworth, Sumner & Fort Smith, 7s.....	1,220.00	1,000.00	1,000.00
	\$26,637.50	\$25,300.00	\$24,950.00
CITY.			
Jersey City, N. J., 7s.....	\$3,270.00	\$3,000.00	\$3,000.00
Portsmouth, N. H., 6s	1,115.00	1,000.00	1,000.00
Manchester, N. H., 6s	8,120.00	7,000.00	6,597.50
COUNTY.			
Bingham, Id., 8s.....	2,100.00	2,000.00	2,000.00
TOWNSHIP.			
Newport, N. H., 6s	13,080.00	12,000.00	12,000.00
SCHOOL DISTRICT.			
Union School District, Lebanon, N. H., 6s	1,700.00	1,700.00	1,611.50
	\$29,385.00	\$26,700.00	\$26,209.00
MISCELLANEOUS.			
Durango city warrants, 10s....	\$948.54	\$948.54	\$948.54
Lombard Investment Co. debentures, 6s	6,500.00	6,500.00	6,500.00
Iowa Loan & Trust Co., 6s	2,000.00	2,000.00	2,000.00
	\$9,448.54	\$9,448.54	\$9,448.54
STOCKS.			
BANK.			
Lebanon National	\$33,360.00	\$27,800.00	\$30,292.00
Merchants' National, Des Moines...	1,500.00	2,000.00	2,000.00
American National, Kansas City...	2,500.00	2,500.00	2,500.00
	\$37,360.00	\$32,300.00	\$34,792.00

LITTLETON SAVINGS BANK.—LITTLETON.

GEORGE A. BINGHAM, *President.* OSCAR C. HATCH, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$702,941.90		\$702,941.90
Guaranty fund.....	25,000.00		25,000.00
Surplus.....	17,422.41		17,422.41
Premium on stocks and bonds.....	13,100.33		
	\$758,464.64		\$745,364.31

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$252,999.37	\$252,999.37	\$252,999.37
Loans secured by local real estate.	90,606.44	90,606.44	90,606.44
Loans on personal security.....	96,932.98	96,932.98	96,932.98
Loans on personal security, (West'n)	43,499.62	43,499.62	43,499.62
Loans on collateral security.....	106,900.71	106,900.71	106,900.71
Western city loans.....	30,475.00	30,475.00	30,475.00
County, city, town, and district bonds.....	28,240.23	26,713.23	25,988.23
Bank stock.....	53,465.00	39,500.00	44,166.67
Manufacturing stock.....	5,520.00	4,600.00	4,600.00
Miscellaneous bonds.....	33,840.00	34,000.00	33,210.00
Balance on deposit in Littleton National Bank.....	9,158.43	9,158.43	9,158.43
Balance in National Bank of Commonwealth, Boston.....	6,595.52	6,595.52	6,595.52
Cash on hand.....	231.34	231.34	231.34
	\$758,464.64	\$742,212.64	\$745,364.31

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$45,640.34
Deduct expenses for 1886	\$2,730.10
Deduct state tax for 1886	6,887.42
	<u>9,617.52</u>
Net profits to be accounted for	\$36,022.82
Dividend of 2 per cent, July 1, 1886	\$12,937.46
Dividend of 2 per cent, Jan. 1, 1887	13,513.20
Carried to guaranty fund	3,000.00
Balance of profits for 1886	6,572.16
Net profits (as above) accounted for	<u>\$36,022.82</u>

Guaranty fund Jan. 1, 1886	\$22,000.00	
Other undivided profits Jan. 1, 1886	1,389.71	
Total surplus profits Jan. 1, 1886	<u> </u>	\$23,389.71
Guaranty fund Jan. 1, 1887	\$25,000.00	
Other undivided profits Jan. 1, 1887	8,675.85	
Total surplus profits Jan. 1, 1887	<u> </u>	33,675.85
<hr/>		
Increase for the year 1886		\$10,286.14

Surplus profits— Jan. 1, 1883, \$10,000 ; Jan. 1, 1884, \$15,247.29 ; Jan. 1, 1885, \$21,643.80 ; Jan. 1, 1886, \$23,389.71 ; Jan. 1, 1887, \$33,675.85.

Incorporated 1868. Charter perpetual.

Examination completed March 3, 1887, by Chas. E. Cooper and Geo. E. Gage.

Vice-President — H. L. Tilton.

Trustees — Geo. A. Bingham, Henry L. Tilton, John Farr, Oscar C. Hatch, Ira Parker, Chas. F. Eastman, Geo. B. Redington, A. A. Woolson, H. H. Southworth, Osmon Parker.

Treasurer's bond \$65,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 10, 1883. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — J. L. Porter.

Annual compensation of treasurer, \$1,700.

Annual compensation of clerk, \$400.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$40,612.79 ; as surety, \$16,300, by unanimous consent of trustees.

Loans and investments are made by Geo. A. Bingham, O. C. Hatch, H. L. Tilton, and C. F. Eastman.

Reports are made as required by law.

This bank receives 2½ per cent interest on its deposits in Boston banks.

Number of depositors, 2,433 ; increase since last examination by Bank Commissioners, 132.

Amount of deposits, \$702,941.90 ; increase since last examination, \$30,496.46.

Amount of bank's assets in Boston for safe-keeping, \$59,300.

Number of single loans of \$1,000 or less to separate parties in the State, 99.

Total amount of loans, \$621,727.35.

Total amount of stocks and bonds, \$107,651.67.

Largest amount loaned to any individual, corporation, or company, \$15,678.46.

Amount of assets with interest unpaid for over six months, \$6,900.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$353,206.80.

Total amount loaned or invested in New England, \$356,416.80.

Total amount loaned or invested out of New England, \$372,962.22.

Total amount loaned or invested drawing 3 per cent interest, \$3,000.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$5,000.

Total amount loaned or invested drawing 6 per cent interest, \$381,343.33.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$13,100.

Total amount loaned or invested drawing 7 per cent interest, \$208,233.97.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$1,800.

Total amount loaned or invested drawing 8 per cent interest, \$82,350.40.

Total amount loaned or invested drawing 9 per cent interest, \$5,799.62.

Total amount loaned or invested drawing 10 per cent interest, \$6,600.

Amount invested from which no income has been received during the year, \$4,000.

Dividends for the year ending Dec. 31, 1886: July 1, 1886, 2 per cent, \$12,937.46; Jan 1, 1887, 2 per cent, \$13,513.20.

No extra dividend declared.

Total expense of institution for the twelve months ending March 3, 1887, \$2,681.90.

Amount charged off as losses since last examination, \$900.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$258,383.44.

Amount of dividends declared since last examination, \$39,239.07.

Amount of deposits paid since last examination, \$267,126.15.

SCHEDULE OF BONDS AND STOCKS OF THE LITTLETON SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
CITY.			
Des Moines, Io., 7s.....	\$3,300.00	\$3,000.00	\$3,000.00
Piqua, O., 6s.....	3,180.00	3,000.00	3,000.00
Lincoln, Neb., 10s.....	1,550.00	1,500.00	1,500.00
Muscatine, Io., 6s.....	2,100.00	2,000.00	1,600.00
Dubuque, Io., 6s.....	2,140.00	2,000.00	1,800.00
Sioux City, Io., 6s.....	4,400.00	4,000.00	4,000.00
Indianapolis, Ind., 6s.....	2,100.00	2,000.00	2,000.00
Quincy, Ill., 6s.....	1,050.00	1,000.00	950.00
Topeka city scrip.....	313.23	313.23	313.23
	\$20,133.23	\$18,813.23	\$18,163.23
SCHOOL DISTRICT.			
Saline County, Neb., 7s.....	\$300.00	\$300.00	\$300.00
Pueblo County, No. 1, Col., 10s.....	1,575.00	1,500.00	1,425.00
Arapahoe, No. 2, Col., 6s.....	5,000.00	5,000.00	5,000.00
	\$6,875.00	\$6,800.00	\$6,725.00
TOWNSHIP.			
Haverhill, N. H., 6s.....	\$1,232.00	\$1,100.00	\$1,100.00
MISCELLANEOUS.			
Mt. Washington Hotel, 8s.....	\$5,500.00	\$5,000.00	\$5,000.00
Opera Block Co., 6s.....	7,000.00	7,000.00	7,000.00
Old Colony Steamboat Co., 6s.....	3,300.00	3,000.00	3,210.00
Danville Water Co., 6s.....	2,000.00	2,000.00	2,000.00
Quincy Water Co., 6s.....	2,040.00	2,000.00	2,000.00
Apthorp Reservoir Co., 6s.....	10,000.00	10,000.00	10,000.00
Des Moines Land Co., 7s.....	4,000.00	5,000.00	4,000.00
	\$33,840.00	\$34,000.00	\$33,210.00
STOCKS.			
BANK.			
Sioux National, Sioux City.....	\$4,400.00	\$4,000.00	\$4,000.00
Des Moines National, Des Moines..	3,000.00	3,000.00	3,000.00
Second National, Nashua.....	3,960.00	3,600.00	3,600.00
Citizens' National, Tilton.....	1,575.00	1,500.00	1,500.00
Littleton National, Littleton.....	38,850.00	25,900.00	30,566.67
Laconia National, Laconia.....	1,680.00	1,500.00	1,500.00
	\$53,465.00	\$39,500.00	\$44,166.67
MISCELLANEOUS.			
Minnesota Loan & Trust Co.....	\$3,000.00	\$2,500.00	\$2,500.00
Eastern Banking Co., Crete, Neb...	2,520.00	2,100.00	2,100.00
	\$5,520.00	\$4,600.00	\$4,600.00

LOAN AND TRUST SAVINGS BANK.—CONCORD.

J. EVERETT SARGENT, *President.*JOHN F. JONES, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$1,865,751.34		\$1,865,751.34
Guaranty fund.....	60,000.00		60,000.00
Surplus.....	79,089.78		79,089.78
Premium on stocks and bonds.....	27,148.25		
	\$2,031,989.37		\$2,004,841.12

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$303,938.00	\$303,938.00	\$303,938.00
Loans secured by local real estate.....	234,191.00	234,191.00	234,191.00
Loans on personal security.....	106,522.34	106,522.34	106,522.34
Loans secured by Western city mortgages.....	437,600.00	437,600.00	437,600.00
Loans on personal security (Western).....	55,569.58	55,569.58	55,569.58
Loans on collateral security.....	171,190.50	171,190.50	171,190.50
Loans on collateral security (Western).....	19,400.00	19,400.00	19,400.00
United States bonds.....	11,000.00	10,000.00	10,250.00
State bonds.....	15,300.00	15,000.00	15,300.00
County, city, town, and district bonds.....	258,524.53	252,438.59	252,801.03
Railroad bonds.....	94,300.00	90,000.00	92,837.50
Railroad stock.....	25,000.00	10,000.00	20,000.00
Bank stock.....	51,274.00	37,600.00	42,851.75
Miscellaneous bonds.....	183,850.00	181,500.00	181,260.00
Miscellaneous stocks.....	23,200.00	20,700.00	20,000.00
Balance on deposit in nat. banks...	28,492.11	28,492.11	28,492.11
Real estate acquired or held by foreclosure.....	9,437.94	9,437.94	9,437.94
Cash on hand.....	3,199.37	3,199.37	3,199.37
	\$2,031,989.37	\$1,986,779.43	\$2,004,841.12

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$120,788.47
Deduct expenses for 1886	\$5,393.67
Deduct state tax for 1886	16,933.54
Deduct tax and repairs on real estate, etc.	1,107.78

Deduct items charged off	\$3,000.00	
Deduct interest paid on accounts closed	5,525.26	
	<hr/>	\$31,960.25
Net profits to be accounted for		\$88,828.22
Dividend of 4 per cent, July, 1886 . .	\$64,787.33	
Carried to guaranty fund	12,000.00	
Balance of profits for 1886	12,040.89	
Net profits (as above) accounted for .	<hr/>	\$88,828.22
Guaranty fund Jan. 1, 1886	\$48,000.00	
Other undivided profits Jan. 1, 1886 .	46,642.36	
Total surplus profits Jan. 1, 1886 . .	<hr/>	\$94,642.36
Guaranty fund Jan. 1, 1887	\$60,000.00	
Other undivided profits Jan. 1, 1887 .	58,683.25	
Total surplus profits Jan. 1, 1887 . .	<hr/>	118,683.25
Increase for the year 1886		\$24,040.89
Surplus profits — Jan. 1, 1883, \$72,393.98 ; Jan. 1, 1884, \$79,690.34 ; Jan. 1, 1885, \$100,115.98 ; Jan. 1, 1886, \$94,642.36 ; Jan. 1, 1887, \$118,683.25.		

Incorporated 1872. Charter perpetual.

Examination completed March 1, 1887, by George E. Gage and Charles E. Cooper.

Vice-President — James S. Norris.

Trustees — J. Everett Sargent, Lewis Downing, Jr., James S. Norris, Howard A. Dodge, John F. Jones, Silas Curtis, L. W. Cogswell, Paul R. Holden, John H. Barron, Howard L. Porter, John M. Mitchell, Wm. H. Allison.

Treasurer's bond \$100,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Nov. 28, 1885. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — Fred N. Ladd.

Annual compensation of treasurer, \$1,800.

Annual compensation of clerk, \$1,000.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by J. Everett Sargent, Lewis Downing, Jr., J. S. Norris, H. A. Dodge, Howard L. Porter.

Reports are made as required by law.

This bank receives 3 per cent interest on its deposits in Boston banks.

Number of depositors, 4,490 ; increase since last examination by Bank Commissioners, 353.

Amount of deposits, \$1,865,751.34 ; increase since last examination, \$146,702.08.

Number of single loans of \$1,000 or less to separate parties in the State, 161.

Total amount of loans, \$1,328,411.42.

Total amount of stocks and bonds, \$635,300.28.

Largest amount loaned to any individual, corporation, or company, \$30,000.

Amount of assets with interest unpaid for over six months, \$18,944.25.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$593,833.26.

Total amount loaned or invested in New England, \$610,133.26.

Total amount loaned or invested out of New England, \$1,363,016.38.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest, \$10,000.

Total amount loaned or invested drawing 5 per cent interest, \$42,000.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$15,500.

Total amount loaned or invested drawing 6 per cent interest, \$1,136,395.11.

Total amount loaned or invested drawing $6\frac{1}{4}$ per cent interest, \$17,500.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$121,350.

Total amount loaned or invested drawing 7 per cent interest, \$452,620.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$24,800.

Total amount loaned or invested drawing 8 per cent interest, \$77,858.

Total amount loaned or invested drawing 9 per cent interest, \$1,850.

Total amount loaned or invested drawing 10 per cent interest, \$53,138.59.

Amount invested from which no income has been received during the year, \$20,137.94.

Dividends for the year ending Dec. 31, 1886: July, 1886, 4 per cent, \$64,787.33.

Total expense of institution for the twelve months ending March 1, 1887, \$5,419.35.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, \$192.52.

Amount of deposits received since last examination, \$508,366.34.

Amount of dividends declared since last examination, \$64,787.33.

Amount paid on account of deposits since last examination, \$426,451.59.

SCHEDULE OF BONDS AND STOCKS OF THE LOAN AND TRUST
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States (coupon), 4½s.....	\$11,000.00	\$10,000.00	\$10,250.00
STATE.			
Dakota, 6s.....	\$5,000.00	\$5,000.00	\$5,000.00
New Mexico, 7s.....	10,300.00	10,000.00	10,300.00
	\$15,300.00	\$15,000.00	\$15,300.00
RAILROAD.			
Oregon Short Line, 6s.....	\$20,600.00	\$20,000.00	\$19,575.00
Pueblo & Arkansas Valley, 7s.....	12,400.00	10,000.00	11,300.00
Utah Central, 6s.....	20,250.00	25,000.00	25,250.00
Boston, Concord & Montreal, 7s....	11,350.00	10,000.00	10,000.00
Northern Pacific, 6s.....	11,700.00	10,000.00	10,250.00
Minneapolis & St. Louis, 7s.....	18,000.00	15,000.00	16,462.50
	\$94,300.00	\$90,000.00	\$92,837.50
COUNTY.			
Parke, Ind., 6s.....	\$4,000.00	\$4,000.00	\$3,960.00
Pueblo, Col., 6s.....	5,000.00	5,000.00	5,075.00
Sumner, Kan., 6s.....	10,500.00	10,000.00	10,250.00
Ringgold, Io., 6s.....	10,300.00	10,000.00	10,250.00
Kingman, Kan., 6s.....	5,500.00	5,500.00	5,582.50
Jay, Ind., 6s.....	5,000.00	5,000.00	4,950.00
Jackson, Kan., 7s.....	3,120.00	3,000.00	2,100.00
Barton, Kan., 10s.....	2,040.00	2,000.00	1,880.00
Las Animas, Col., 7s.....	5,200.00	5,000.00	4,900.00
Davison, Dak., 7s.....	5,100.00	5,000.00	5,125.00
Dallas, Io., 6s.....	10,000.00	10,000.00	10,075.00
Cass, Dak., 7s.....	10,500.00	10,000.00	10,550.00
	\$76,260.00	\$74,500.00	\$74,697.50
CITY.			
Colorado Springs, Col., 7s.....	\$3,180.00	\$3,000.00	\$3,195.00
Sterling, Ill., 7s.....	5,050.00	5,000.00	4,900.00
St. Paul, Minn., 7s.....	5,750.00	5,000.00	4,837.50
St. Paul, Minn., 6s.....	5,400.00	5,000.00	4,387.50
Raymond, Kan., 10s.....	5,150.00	5,000.00	5,300.00
Rock Island, Ill., 6s.....	5,250.00	5,000.00	4,700.00
Washington, Ind., 8s.....	4,400.00	4,000.00	4,277.50
Wichita, Kan., 6s...	5,000.00	5,000.00	5,125.00
Wooster, O., 8s.....	500.00	500.00	520.00
Terre Haute, Ind., 6s.....	11,220.00	11,000.00	11,110.00
Fargo, Dak., 6s.....	5,100.00	5,000.00	5,000.00
Emporia, Kan., 6s.....	6,120.00	6,000.00	6,240.00
Greeley, Kan., 10s...	1,020.00	1,000.00	1,050.00
East St. Louis, Ill., 10s.....	4,500.00	5,000.00	5,125.00
Cleveland, O., 6s.....	5,950.00	5,000.00	5,212.50
Aurora, Ind., 6s.....	4,800.00	4,800.00	4,944.00
Bedford, Ind., 6s.....	5,000.00	5,000.00	4,850.00
Bellevue, O., 8s.....	5,000.00	5,000.00	5,000.00
Lake, Ill., 6s.....	5,250.00	5,000.00	5,000.00
Dubuque, Io., 6s.....	8,025.00	7,500.00	6,625.00
Vergennes, Vt., 6s.....	3,000.00	3,000.00	3,045.00
New Philadelphia, O., 5½s.....	11,000.00	11,000.00	11,110.00
Muncie, Ind., 6s.....	4,000.00	4,000.00	4,000.00
Huron city warrants, Dak., 7s.....	10,000.00	10,000.00	10,000.00
Denver city warrants, Col., 10s.....	10,239.53	10,239.53	10,239.53
	\$139,904.53	\$135,938.53	\$135,793.53

SCHEDULE OF BONDS AND STOCKS OF THE LOAN AND TRUST
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT.			
Ottumwa, Io., 6s.....	\$5,000.00	\$5,000.00	\$5,025.00
West Des Moines, Io., 5s	20,000.00	20,000.00	19,800.00
Maple Grove, Io., 6½s.....	2,000.00	2,000.00	2,000.00
Brownville, Neb., 7s.....	6,360.00	6,000.00	6,360.00
McPherson, Kan., 6s.....	4,500.00	4,500.00	4,590.00
Mitchell, Ind., 5½s.....	4,500.00	4,500.00	4,535.00
	\$42,360.00	\$42,000.00	\$42,310.00
MISCELLANEOUS.			
Danville Water Co., Ill., 6s	\$10,000.00	\$10,000.00	\$9,700.00
Ottumwa Water-works, Io., 6s.....	10,200.00	10,000.00	10,200.00
Parsons Water Co., Kan., 6s.....	5,000.00	5,000.00	4,900.00
Union Manufacturing Co., O., 6s ...	10,000.00	10,000.00	10,000.00
Winfield Water Supply Co., Kan., 6s	10,000.00	10,000.00	9,750.00
Topeka Water Supply Co., Kan., 6s	5,250.00	5,000.00	5,000.00
Fort Plain Water-works, N. Y., 6s..	5,000.00	5,000.00	5,000.00
Newton Water Co., Kan., 7s.....	9,450.00	9,000.00	9,135.00
Brainerd Water Co., Minn., 7s.....	5,500.00	5,000.00	5,000.00
Niles Water-works, Mich., 7s.....	5,250.00	5,000.00	5,112.50
Quincy Water Co., Mass., 6s.....	5,100.00	5,000.00	5,000.00
Iowa Loan and Trust Co., 6s.....	24,000.00	24,000.00	24,000.00
Des Moines Street Railway, Io., 6s.	10,500.00	10,000.00	10,000.00
Wooster Water-works, O., 6s.....	5,000.00	5,000.00	5,162.50
Fulton Water-works, 6s.....	5,000.00	5,000.00	4,900.00
New London Institution, 6s.....	1,500.00	1,500.00	1,500.00
National Water-works Co., N. Y., 6s	5,000.00	5,000.00	4,900.00
New Hampshire Trust Co. deb., 6s	5,000.00	5,000.00	5,000.00
Central Loan and Land Co. deb., 6s	10,000.00	10,000.00	10,000.00
Nebraska Loan and Trust Co. deb., 6s	12,000.00	12,000.00	12,000.00
Kansas Investment Co. deb., 6½s ...	10,000.00	10,000.00	10,000.00
Cherry Vale Water & Manuf. Co., 7s	5,100.00	5,000.00	5,000.00
Wahpeton Water Co., 6s.....	5,000.00	5,000.00	5,000.00
Belleville Water-works Co., 6s	5,000.00	5,000.00	5,000.00
	\$183,850.00	\$181,500.00	\$181,260.00
STOCKS.			
BANK.			
Nat. State Capital, Concord, N. H..	\$26,250.00	\$15,000.00	\$20,175.00
Blackstone National, Boston, Mass.	3,663.00	3,300.00	3,397.75
Lake National, Wolfborough, N.H.	2,461.00	2,300.00	1,909.00
Second National, Nashua, N. H.....	6,600.00	6,000.00	5,850.00
Second National, Manchester, N. H.	6,000.00	5,000.00	5,000.00
First National, Nashua, N. H.....	1,050.00	1,000.00	1,020.00
Merchants' Nat., Kansas City, Mo..	5,250.00	5,000.00	5,500.00
	\$51,274.00	\$37,600.00	\$42,851.75
RAILROAD.			
Concord	\$25,000.00	\$10,000.00	\$20,000.00
MISCELLANEOUS.			
Iowa Loan & Trust Co., Des Moines	\$12,500.00	\$10,000.00	\$10,000.00
Minnesota Thresher & Manuf. Co..	10,700.00	10,700.00	10,000.00
	\$23,200.00	\$20,700.00	\$20,000.00

MANCHESTER SAVINGS BANK. — MANCHESTER.

DANIEL CLARK, *President.*WALTER M. PARKER, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$4,739,751.11		\$4,739,751.11
Guaranty fund.....	171,181.38		171,181.38
Surplus.....	210,000.00		210,000.00
Premium on stocks and bonds.....	197,755.58		
	\$5,318,688.07		\$5,120,932.49

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western city mortgages.....	\$1,495,300.00	\$1,495,300.00	\$1,495,300.00
Loans secured by local real estate.....	374,314.72	374,314.72	374,314.72
Loans on personal security.....	585,325.72	585,325.72	585,325.72
Loans on personal security (Western)	106,000.00	106,000.00	106,000.00
Loans on collateral security.....	1,031,313.95	1,031,313.95	1,031,313.95
United States bonds.....	119,750.00	100,000.00	100,000.00
State bonds.....	30,150.00	25,000.00	24,000.00
County, city, town, and district bonds.....	353,771.58	324,226.58	324,564.08
Railroad bonds.....	833,685.00	754,500.00	748,069.67
Railroad stock.....	121,255.00	83,100.00	84,600.00
Bank stock.....	78,115.00	64,280.00	63,249.75
Manufacturing stock.....	7,000.00	5,000.00	5 000.00
Miscellaneous bonds.....	166,400.00	160,000.00	162,887.50
Balance on deposit in Manchester National Bank	16,307.10	16,307.10	16,307.10
	\$5,318,688.07	\$5,124,668.07	\$5,120,932.49

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$265,215.43
Deduct expenses for 1886	\$8,913.51
Deduct state tax for 1886	45,879.23
	<u>54,792.74</u>

Net profits to be accounted for	\$210,422.69
Dividend of 4 per cent, July 1, 1886	\$177,097.67
Carried to guaranty fund	20,000.00
Balance of profits for 1886	13,325.02
Net profits (as above) accounted for	<u>\$210,422.69</u>

Guaranty fund Jan. 1, 1886 . . .	\$190,000.00
Other undivided profits Jan. 1, 1886 . .	187,554.70
Total surplus profits Jan. 1, 1886 . . .	<u>\$377,554.70</u>
Guaranty fund Jan. 1, 1887 . . .	\$210,000.00
Other undivided profits Jan. 1, 1887 . .	200,879.72
Total surplus profits Jan. 1, 1887 . . .	<u>410,879.72</u>
Increase for the year 1886	\$33,325.02

Surplus profits — Jan. 1, 1883, \$276,592.19 ; Jan. 1, 1884, \$314,721.30 ; Jan. 1, 1885, \$346,818.14 ; Jan. 1, 1886, \$377,554.70 ; Jan. 1, 1887, \$410,879.72.

Incorporated 1846. Charter perpetual.

Examination completed Dec. 21, 1886, by George E. Gage.

Trustees — Nathan Parker, Charles F. Warren, Charles D. McDuffie, S. N. Bourne, Frederick C. Dow, Walter M. Parker, Hiram Hill, E. H. Paine.

Treasurer's bond \$100,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Sept. 1, 1885. Sureties of bond are able to respond. Bond deposited in vault of Manchester National Bank for safe-keeping.

Clerks — W. B. Stearns, G. H. Holbrook, Mitchell Ward, Frank E. Putney.

Annual compensation of treasurer, \$4,000.

Annual compensation of clerks, \$4,000.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by committee of investment and treasurer.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 10,364 ; increase since last examination by Bank Commissioners, 224.

Amount of deposits, \$4,739,751.11 ; increase since last examination, \$115,400.15.

Amount of bank's assets in Boston for safe-keeping, \$180,000.

Number of single loans of \$1,000 or less to separate parties in the State, 75.

Total amount of loans, \$3,592,254.39.

Total amount of stocks and bonds, \$1,512,371.

Largest amount loaned to any individual, corporation, or company, \$150,000.

Amount of assets with interest unpaid for over six months, \$12,000.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$1,425,573.42.

Total amount loaned or invested in New England, \$2,538,373.42.
Total amount loaned or invested out of New England, \$2,566,251.97.
Total amount loaned or invested drawing 4 per cent interest,
\$403,000.
Total amount loaned or invested drawing $4\frac{1}{4}$ per cent interest,
\$20,000.
Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest,
\$127,000.
Total amount loaned or invested drawing $4\frac{3}{4}$ per cent interest,
\$128,000.
Total amount loaned or invested drawing 5 per cent interest,
\$781,658.66.
Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest,
\$418,630.72.
Total amount loaned or invested drawing 6 per cent interest,
\$2,461,516.59.
Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$144,975.
Total amount loaned or invested drawing $6\frac{3}{4}$ per cent interest,
\$14,000.
Total amount loaned or invested drawing 7 per cent interest,
\$352,600.
Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest,
\$35,000.
Total amount loaned or invested drawing 8 per cent interest,
\$187,080.
Total amount loaned or invested drawing 9 per cent interest,
\$22,300.
Total amount loaned or invested drawing 10 per cent interest,
\$12,000.
Amount invested from which no income has been received during
the year, \$600.
Dividends for the year ending Dec. 31, 1886: July 1, 1886, 4
per cent, \$177,097.67.
No extra dividend declared.
Total expense of institution for the twelve months ending Dec. 21,
1886, \$8,875.16.
Amount charged off as losses since last examination, nothing.
Amount of other taxes, nothing.
Amount of deposits received since last examination, \$737,807.67.
Amount of dividends declared since last examination, \$177,097.67.
Amount paid on account of deposits since last examination,
\$799,505.19.

SCHEDULE OF BONDS AND STOCKS OF THE MANCHESTER SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s	\$55,000.00	\$50,000.00	\$50,000.00
United States, 4½s	64,750.00	50,000.00	50,000.00
	\$119,750.00	\$100,000.00	\$100,000.00
STATE.			
New Hampshire, 6s	\$30,150.00	\$25,000.00	\$24,000.00
RAILROAD.			
Chicago, Burlington & Quincy, 4s..	\$24,125.00	\$25,000.00	\$21,312.50
Rutland, 5s	18,000.00	18,000.00	15,000.00
Northern Pacific, 6s	58,000.00	50,000.00	55,375.00
Old Colony, 6s	35,850.00	30,000.00	30,000.00
Ogdensburg & Lake Champlain, 8s	30,900.00	30,000.00	30,000.00
Eastern (Massachusetts), 6s	19,840.00	15,500.00	15,500.00
Portland & Kennebec, 6s	22,000.00	20,000.00	18,000.00
Boston, Concord & Montreal, 6s....	136,625.00	125,000.00	124,287.50
Boston, Concord & Montreal, 7s....	28,375.00	25,000.00	25,000.00
Fremont, Elkhorn & Missouri Val- ley, 6s	23,000.00	20,000.00	22,025.00
Chicago, Burlington & Northern, 5s	1,045.00	1,000.00	1,110.00
Oregon Railway & Navigation, 7s..	25,000.00	25,000.00	25,187.50
Chicago, Burlington & Quincy, 5s..	26,750.00	25,000.00	24,156.25
Chicago & West Michigan, 5s	20,000.00	20,000.00	19,234.67
Morris & Essex, 7s	27,400.00	20,000.00	20,000.00
Concord & Claremont, 7s	100,800.00	90,000.00	90,000.00
Michigan Central, 8s	108,000.00	100,000.00	100,000.00
Chicago, Burlington & Quincy, 7s..	25,900.00	20,000.00	19,000.00
Chicago, Milwaukee & St. Paul (Wisconsin Valley Division), 6s..	27,875.00	25,000.00	25,000.00
Boston & Lowell, 6s	34,800.00	30,000.00	30,000.00
Burlington & Missouri River (in Nebraska), 4s	18,400.00	20,000.00	16,931.25
James River Valley, 6s... ..	21,000.00	20,000.00	20,950.00
	\$833,685.00	\$754,500.00	\$748,069.67
CITY.			
St Paul, Minn., 5s	\$29,835.00	\$27,000.00	\$27,912.50
Springfield, O., 5s	10,200.00	10,000.00	10,150.00
Toledo, O., 8s	30,000.00	25,000.00	25,000.00
St. Paul, Minn., 6s	20,000.00	20,000.00	20,000.00
Terre Haute, Ind., 6s	7,350.00	7,000.00	7,000.00
Cincinnati, O., 7s	16,050.00	15,000.00	15,000.00
St. Louis, Mo., 6s	22,000.00	22,000.00	18,640.00
Manchester, N. H., 6s	23,000.00	20,000.00	20,000.00
Fargo, Dak., 7s	10,800.00	10,000.00	10,100.00
Fargo, Dak., 6s	15,600.00	15,000.00	15,000.00
Omaha, Neb., 5s	15,000.00	15,000.00	15,000.00
Indianapolis, Ind., 6s	15,750.00	15,000.00	15,000.00
Chicago, Ill., 7s	52,750.00	50,000.00	48,500.00
Cincinnati, O., 7 3-10s	45,500.00	35,000.00	35,000.00
Milwaukee, Wis., 7s	20,710.00	19,000.00	23,035.00
	\$334,545.00	\$305,000.00	\$305,337.50
SCHOOL DISTRICT.			
Minnesota County, No. 9, 8s	\$10,000.00	\$10,000.00	\$10,000.00

SCHEDULE OF BONDS AND STOCKS OF THE MANCHESTER SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
WARRANTS.			
State of Colorado warrants, 6s	\$9,226.58	\$9,226.58	\$9,226.58
MISCELLANEOUS.			
Minnesota Gas-light Co., 6s.....	\$36,750.00	\$35,000.00	\$36,750.00
Plattsmouth Water Co., 6s.....	10,000.00	10,000.00	10,000.00
Metropolitan Railroad, 5s.....	26,250.00	25,000.00	25,937.50
Topeka Water Supply Co., 6s.....	35,000.00	35,000.00	35,000.00
Sioux City Gas-light Co., 7s.....	20,400.00	20,000.00	20,200.00
Highland Street Railway Co., 6s....	10,500.00	10,000.00	10,000.00
Old Colony Steamboat Co., 6s.....	27,500.00	25,000.00	25,000.00
	\$166,400.00	\$160,000.00	\$162,887.50
STOCKS.			
BANK.			
National Bank of Commerce, Boston.....	\$10,000.00	\$8,000.00	\$8,000.00
Tremont National, Boston.....	6,060.00	6,000.00	6,000.00
Metropolitan National, Boston.....	2,240.00	2,000.00	2,000.00
Indian Head, Nashua.....	2,000.00	1,280.00	1,280.00
Souhegan National, Milford.....	3,120.00	2,600.00	2,600.00
Amoskeag National, Manchester...	6,000.00	4,800.00	5,131.50
Merchants' National, Manchester...	15,340.00	11,800.00	10,438.25
Merchants' National, Boston.....	10,500.00	7,500.00	7,500.00
National Bank of North America, Boston.....	8,320.00	8,000.00	8,000.00
Boston National, Boston.....	6,360.00	5,300.00	5,300.00
Howard National, Boston.....	6,270.00	5,500.00	5,500.00
Columbian National, Boston.....	1,905.00	1,500.00	1,500.00
	\$78,115.00	\$64,280.00	\$63,249.75
RAILROAD.			
Suncook Valley, N. H.....	\$11,000.00	\$10,000.00	\$10,000.00
Manchester & Lawrence, N. H.....	24,000.00	12,000.00	12,000.00
Concord & Portsmouth, N. H.....	19,600.00	14,000.00	14,000.00
Boston & Maine, N. H.....	24,465.00	10,500.00	10,500.00
Pemigewasset Valley, N. H.....	26,250.00	25,000.00	25,000.00
Chicago, Burlington & Quincy....	15,400.00	11,000.00	13,100.00
Chicago, Burlington & Northern...	540.00	600.00	000.00
	\$121,255.00	\$83,100.00	\$84,600.00
MANUFACTURING.			
Manchester Mills.....	\$7,000.00	\$5,000.00	\$5,000.00

MASON VILLAGE SAVINGS BANK. — GREENVILLE.

SAMUEL HAINES, *President.*CHARLES E. MARSH, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$77,612.91		\$77,612.91
Guaranty fund.....	4,000.00		4,000.00
Surplus.....	11,766.33		11,766.33
Notes given.....	11,000.00		11,000.00
Premium on stocks and bonds, im- paired	\$104,379.24 563.88		
	\$103,815.36		\$104,379.24

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by local real estate.	\$17,235.00	\$17,235.00	\$17,235.00
Loans on personal security.....	3,710.00	3,710.00	3,710.00
Loans on collateral security.....	714.00	714.00	714.00
County, city, town, and district bonds.....	15,070.00	14,000.00	13,827.50
Railroad bonds.....	29,865.00	26,000.00	25,896.88
Railroad stock.....	19,199.25	28,900.00	26,698.75
Bank stock.....	9,240.00	8,400.00	8,470.00
Miscellaneous bonds	3,000.00	3,000.00	3,045.00
Miscellaneous stocks.....	3,000.00	2,000.00	2,000.00
Balance on deposit in Int. Trust Co., Boston.....	1,499.27	1,499.27	1,499.27
Cash on hand.....	1,282.84	1,282.84	1,282.84
	\$103,815.36	\$106,741.11	\$104,379.24

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$5,685.44
Deduct expenses for 1886	\$402.46
Deduct state tax for 1886	827.45
	<hr/> 1,229.91
Net profits to be accounted for	\$4,455.53
Dividend of 2 per cent, Jan. 16, 1886 . .	\$1,634.21
Dividend of 2 per cent, July 17, 1886 . .	1,515.38
Balance of profits for 1886	1,305.94
Net profits (as above) accounted for . .	<hr/> \$4,455.53

Guaranty fund Jan. 1, 1886	\$4,000.00	
Other undivided profits Jan. 1, 1886	10,903.58	
Total surplus profits Jan. 1, 1886	<u> </u>	\$14,903.58
Guaranty fund Jan. 1, 1887	\$4,000.00	
Other undivided profits Jan. 1, 1887	12,210.52	
Total surplus profits Jan. 1, 1887	<u> </u>	16,210.52
		<hr/>
Increase for the year 1886		\$1,305.94

Surplus profits — Jan. 1, 1883, \$2,805.34; Jan. 1, 1884, \$7,053.51; Jan. 1, 1885, \$13,778.66; Jan. 1, 1886, \$14,903.58; Jan. 1, 1887, \$16,210.52.

Incorporated 1870. Charter perpetual.

Examination completed Jan. 8, 1887, by Charles E. Cooper.

Vice-Presidents — I. Wheeler, A. Scripture, S. H. Bacon.

Trustees — Geo. F. Merriam, James Taft, Chas. E. Marsh, Milton H. Hardy, Morton L. Barrett, Thomas Hayes, Vernon Eaton, Henry S. Whitney, E. Brooks Barrett, J. Hammond Elliot, W. H. Wilson, Henry B. Hosmer.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 8, 1886. Sureties of bond are able to respond. Bond deposited with president of the bank for safe-keeping.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

Indebtedness of trustees as principal, none; as surety, \$850, by unanimous consent of trustees.

Loans and investments are made by Milton H. Hardy, S. H. Bacon, M. L. Barrett, Samuel Haynes, and C. E. Marsh.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 371; decrease since last examination by Bank Commissioners, 15.

Amount of deposits, \$77,612.91; decrease since last examination, \$9,374.21.

Amount of bank's assets in Boston for safe-keeping, \$43,000.

Number of single loans of \$1,000 or less to separate parties in the State, 29.

Total amount of loans, \$21,659.

Total amount of stocks and bonds, \$79,938.13.

Largest amount loaned to any individual, corporation, or company, \$4,000.

Amount of assets with interest unpaid for over six months, \$23,413.75.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$29,697.13.

Total amount loaned or invested in New England, \$45,741.11.

Total amount loaned or invested out of New England, \$61,000.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$2,300.

Total amount loaned or invested drawing 6 per cent interest, \$52,509.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$1,550.

Total amount loaned or invested drawing 7 per cent interest, \$11,400.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$300.

Total amount loaned or invested drawing 8 per cent interest, \$11,000.

Amount invested from which no income has been received during the year, \$24,900.

Dividends for the year ending Dec. 31, 1886: Jan. 16, 1886, 2 per cent, \$1,634.21; July 17, 1886, 2 per cent, \$1,515.38.

Total expense of institution for the twelve months ending Jan. 8, 1887, \$397.80.

Amount charged off as losses since last examination, nothing.

Amount of deposits received since last examination, \$11,143.65.

Amount of dividends declared since last examination, \$3,149.59.

Amount paid on account of deposits since last examination, \$23,667.45.

SCHEDULE OF BONDS AND STOCKS OF THE MASON VILLAGE SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Union Pacific (sinking fund), 8s.....	\$10,305.00	\$9,000.00	\$8,216.88
Northern Pacific, 6s.....	11,700.00	10,000.00	10,250.00
New York & New England, 6s.....	4,680.00	4,000.00	4,250.00
Union Pacific, 6s.	3,180.00	3,000.00	3,180.00
	\$29,865.00	\$26,000.00	\$25,896.88
MISCELLANEOUS.			
Owego Water-works, 6s.....	\$3,000.00	\$3,000.00	\$3,045.00
CITY.			
Quincy, Ill., 6s.....	\$6,300.00	\$6,000.00	\$5,610.00
Dubuque, Io., 6s.....	5,350.00	5,000.00	5,075.00
DISTRICT.			
District of Columbia, 7s.....	3,420.00	3,000.00	3,142.50
	\$15,070.00	\$14,000.00	\$13,827.50
STOCKS.			
BANK.			
Second National, Nashua, N. H.....	\$9,240.00	\$8,400.00	\$8,470.00
RAILROAD.			
Massachusetts Central, preferred..	\$6,349.25	\$10,900.00	\$9,922.50
Union Pacific.....	8,610.00	14,000.00	13,491.25
Atchison, Topeka & Santa Fé.....	4,240.00	4,000.00	3,285.00
	\$19,199.25	\$28,900.00	\$26,698.75
MISCELLANEOUS.			
New Hampshire Fire Insurance Co.	\$3,000.00	\$2,000.00	\$2,000.00

MECHANICS' SAVINGS BANK. — MANCHESTER.

HENRY E. BURNHAM, *President.* JOSIAH CARPENTER, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$239,726.88		\$239,726.88
Guaranty fund.....	6,212.94		6,212.94
Surplus.....	4,264.82		4,264.82
Premium on stocks and bonds	4,253.31		
	\$254,457.95		\$250,204.64

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$82,525.00	\$82,525.00	\$82,525.00
Loans secured by local real estate.	44,489.67	44,489.67	44,489.67
Loans on personal security.....	36,616.72	36,616.72	36,616.72
Loans on collateral security.....	26,262.77	26,262.77	26,262.77
United States bonds.....	1,349.00	1,050.00	1,050.00
Railroad bonds.....	19,700.00	18,000.00	19,864.44
Railroad stock.....	3,075.00	5,000.00	4,756.25
Bank stock.....	30,500.00	25,000.00	25,000.00
Manufacturing stock.....	2,300.00	1,000.00	2,000.00
Certificate of deposit (Citizens' Na- tional Bank, Grand Forks, Dak.)..	5,000.00	5,000.00	5,000.00
Balance on deposit in Second Na- tional Bank, Manchester.....	2,639.79	2,639.79	2,639.79
	\$254,457.95	\$247,583.95	\$250,204.64

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$14,731.92
Deduct expenses for 1886	\$721.88
Deduct state tax for 1886	2,253.50
	<u>2,975.38</u>
Net profits to be accounted for	\$11,756.54
Dividend of 4½ per cent, Oct. 1, 1886	\$9,700.99
Carried to guaranty fund	1,192.13
Balance of profits for 1886	863.42
Net profits (as above) accounted for	<u>\$11,756.54</u>
Guaranty fund Jan. 1, 1886	\$5,020.81
Other undivided profits Jan. 1, 1886	5,260.85
Total surplus profits Jan. 1, 1886	<u>\$10,281.66</u>

Guaranty fund Jan. 1, 1887	\$6,212.94
Other undivided profits Jan. 1, 1887	6,124.27
Total surplus profits Jan. 1, 1887	<u>\$12,337.21</u>

Increase for the year 1886 \$2,055.55

Surplus profits — Jan. 1, 1883, \$5,858.70; Jan. 1, 1884, \$7,473.63; Jan. 1, 1885, \$8,088.94; Jan. 1, 1886, \$10,281.66; Jan. 1, 1887, \$12,337.21.

Incorporated 1876. Charter perpetual.

Examination completed Nov. 18, 1886, by George E. Gage.

Trustees — Henry E. Burnham, N. S. Bean, Geo. W. Dodge, F. P. Carpenter, Josiah Carpenter, S. N. Bourne, Charles T. Means.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 19, 1882. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Annual compensation of treasurer, \$600.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 524; increase since last examination by Bank Commissioners, 29.

Amount of deposits, \$239,726.88; increase since last examination, \$19,121.56.

Number of single loans of \$1,000 or less to separate parties in the State, 27.

Total amount of loans, \$163,631.39.

Total amount of stocks and bonds, \$52,670.69.

Largest amount loaned to any individual, corporation, or company, \$15,000.

No assets with interest unpaid for over six months.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$134,369.16.

Total amount loaned or invested in New England, \$134,369.16.

Total amount loaned or invested out of New England, \$113,195.69.

Total amount loaned or invested drawing 4 per cent interest, \$1,050.

Total amount loaned or invested drawing 5 per cent interest, \$20,000.

Total amount loaned or invested drawing 6 per cent interest, \$114,969.16.

Total amount loaned or invested drawing 6½ per cent interest, \$5,800.

Total amount loaned or invested drawing 7 per cent interest,
\$67,975.

Total amount loaned or invested drawing 8 per cent interest,
\$30,100.

Amount invested from which no income has been received during
the year, \$5,000.

Dividends for the year ending Dec. 31, 1886: Oct. 1, 1886, 4½
per cent, \$9,700.99.

Total expense of institution for the twelve months ending Nov.
18, 1886, \$724.88.

Amount charged off as losses since last examination, \$1,500.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$61,476.66.

Amount of dividends declared since last examination, \$9,700.99.

Amount paid on account of deposits since last examination,
52,056.09.

SCHEDULE OF BONDS AND STOCKS OF THE MECHANICS' SAVINGS
BANK. — MANCHESTER.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s.	\$1,349.00	\$1,050.00	\$1,050.00
RAILROAD.			
Chicago, Milwaukee & St. Paul, 7s.	\$6,500.00	\$5,000.00	\$6,225.00
Kansas City, Fort Scott & Gulf, 7s.	3,525.00	3,000.00	3,239.44
Atlantic & Pacific, 6s.	4,300.00	5,000.00	5,187.50
Northern Pacific, 6s.	5,375.00	5,000.00	5,212.50
	\$19,700.00	\$18,000.00	\$19,864.44
STOCKS.			
BANK.			
Pittsfield National.	\$6,500.00	\$5,000.00	\$5,000.00
Second National, Manchester	24,000.00	20,000.00	20,000.00
Citizens' Nat., Grand Forks, Dak...	5,000.00	5,000.00	5,000.00
	\$35,500.00	\$30,000.00	\$30,000.00
RAILROAD.			
Union Pacific.	\$3,075.00	\$5,000.00	\$4,756.25
MANUFACTURING.			
Amoskeag.	\$2,300.00	\$1,000.00	\$2,000.00

MECHANICS' SAVINGS BANK. — NASHUA.

JOHN C. LUND, *President.*J. W. WHITE, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$448,065.82		\$448,065.82
Guaranty fund.....	8,500.00		8,500.00
Surplus	7,749.81		7,749.81
Due Second National Bank, Nashua	1,250.00		1,250.00
Premium on stocks and bonds	186.00		
	<u>\$465,751.63</u>		<u>\$465,565.63</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$231,160.59	\$231,160.59	\$231,160.59
Loans secured by Western chattel mortgages.....	74,993.58	74,993.58	74,993.58
Loans secured by local real estate.	41,545.00	41,545.00	41,545.00
Loans on personal security.....	8,650.00	8,650.00	8,650.00
Loans on personal security (Western)	17,113.75	17,113.75	17,113.75
Loans on collateral security.....	350.00	350.00	350.00
County, city, town, and district bonds.....	21,843.43	23,869.43	23,559.43
Railroad bonds.....	300.00	3,300.00	2,980.00
Bank stock.....	20,500.00	17,200.00	18,250.00
Miscellaneous bonds.....	34,165.46	33,665.46	33,715.46
Miscellaneous stocks.....	4,000.00	2,500.00	3,125.00
Certificate in First National Bank, Cawker City.....	10,000.00	10,000.00	10,000.00
Cash on hand	122.82	122.82	122.82
	<u>\$465,751.63</u>	<u>\$464,477.63</u>	<u>\$465,565.63</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$26,823.94
Deduct expenses for 1886	\$1,671.94
Deduct state tax for 1886	4,014.24
	<u>5,686.18</u>
Net profits to be accounted for	\$21,137.76

Dividend of 5 per cent, July 1, 1886	. \$18,150.56	
Carried to guaranty fund	. 1,800.00	
Balance of profits for 1886	. 1,187.20	
Net profits (as above) accounted for	. ————	\$21,137.76
Guaranty fund Jan. 1, 1886	. \$6,700.00	
Other undivided profits Jan. 1, 1886	. 8,738.88	
Total surplus profits Jan. 1, 1886	. ————	\$15,438.88
Guaranty fund Jan. 1, 1887	. \$8,500.00	
Other undivided profits Jan. 1, 1887	. 9,715.16	
Total surplus profits Jan. 1, 1887	. ————	18,215.16
Increase for the year 1886	. . . . .	\$2,776.28

Surplus profits — Jan. 1, 1883, \$7,731.92; Jan. 1, 1884, \$7,512.46; Jan. 1, 1885, \$13,191.50; Jan. 1, 1886, \$15,438.88; Jan. 1, 1887, \$18,215.16.

Incorporated 1869. Charter perpetual.

Examination completed Dec. 2, 1886, by George E. Gage.

Trustees — John C. Lund, J. W. White, John D. Chandler, H. W. Gilman, Allen Wilson, James H. Blake, Charles Williams, W. A. Lovering, Chas. B. Richardson, William N. Johnson, F. W. Estabrook, Daniel Marshall, and Kimball Webster.

Treasurer's bond \$45,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 20, 1884. Sureties of bond are able to respond. Bond deposited with John E. Dearborn for safe-keeping.

Clerk — J. H. Prichard.

Annual compensation of treasurer, \$1,000.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$2,000; as surety, \$6,150, by unanimous consent of trustees.

Loans and investments are made by committee of investment.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,086; increase since last examination by Bank Commissioners, 74.

Amount of deposits, \$448,065.82; increase since last examination, \$66,588.77.

Number of single loans of \$1,000 or less to separate parties in the State, 46.

Total amount of loans, \$383,812.92.

Total amount of stocks and bonds, \$81,629.89.

Largest amount loaned to any individual, corporation, or company, \$15,500.

Amount of assets with interest unpaid for over six months,
\$25,645.46.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$78,367.82.

Total amount loaned or invested in New England, \$78,367.82.

Total amount loaned or invested out of New England, \$387,074.99.

Total amount loaned or invested drawing 5 per cent interest,
\$6,000.

Total amount loaned or invested drawing 6 per cent interest,
\$7,600.

Total amount loaned or invested drawing 7 per cent interest,
\$172,938.

Total amount loaned or invested drawing 7½ per cent interest,
\$5,000.

Total amount loaned or invested drawing 8 per cent interest,
\$153,821.38.

Total amount loaned or invested drawing 9 per cent interest,
\$16,370.84.

Total amount loaned or invested drawing 10 per cent interest,
\$96,569.46.

Total amount loaned or invested drawing 12 per cent interest,
\$2,250.

Amount invested from which no income has been received during the
year, \$3,805.13.

Dividends for the year ending Dec. 31, 1886: July 1, 1886, 5
per cent, \$18,150.56.

No extra dividend declared.

Total expense of institution for the twelve months ending Dec. 2,
1886, \$2,033.46.

Amount of deposits received since last examination, \$199,229.17.

Amount of dividends declared since last examination, \$18,150.56.

Amount paid on account of deposits since last examination,
\$137,442.95.

SCHEDULE OF BONDS AND STOCKS OF THE MECHANICS' SAVINGS
BANK. — NASHUA.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Texas Trunk.....	\$300.00	\$300.00	\$300.00
Texas Trunk.....	000.00	3,000.00	2,680.00
	\$300.00	\$3,300.00	\$2,980.00
COUNTY.			
Lake, Col., 8s.....	\$2,500.00	\$5,000.00	\$5,000.00
CITY.			
Augusta scrip, Kan....	\$25.13	\$25.13	\$25.13
Moorhead, Minn., 7s.	3,270.00	3,000.00	3,190.00
Vermillion, Dak., 7s.....	5,924.00	5,750.00	5,750.00
Rock Island, Ill., 8s.....	1,000.00	1,000.00	1,000.00
	\$10,219.13	\$9,775.13	\$9,965.13
SCHOOL DISTRICT.			
Spring Valley, Dak., 7s.....	\$1,030.00	\$1,000.00	\$1,000.00
Cass County, Dak., 7s.....	800.00	800.00	800.00
Holman Township, Io., 10s.....	700.00	700.00	700.00
Clay County, Dak., 5s.....	6,000.00	6,000.00	5,500.00
Harvey County, No. 73, Kan., 10s....	594.30	594.30	594.30
	\$9,124.30	\$9,094.30	\$8,594.30
MISCELLANEOUS.			
Rice County warrants, 10s.....	\$500.00	\$500.00	\$550.00
Barnes County warrants, Dak., 8s..	3,165.46	3,165.46	3,165.46
Le Mars Gas Co., Io., 7s	10,500.00	10,000.00	10,000.00
Hotel Garretson, Sioux City, 7s.....	20,000.00	20,000.00	20,000.00
	\$34,165.46	\$33,665.46	\$33,715.46
STOCKS.			
BANK.			
Great Falls National, Great Falls...	\$6,300.00	\$4,200.00	\$5,250.00
Second National, Nashua.....	12,100.00	11,000.00	11,000.00
Sioux National, Sioux City.....	1,100.00	1,000.00	1,000.00
American National, Kansas City...	1,000.00	1,000.00	1,000.00
	\$20,500.00	\$17,200.00	\$18,250.00
MISCELLANEOUS.			
Nashua Card and Glazed Paper Co.	\$4,000.00	\$2,500.00	\$3,125.00

MEREDITH VILLAGE SAVINGS BANK. — MEREDITH.

S. A. LADD, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$392,893.76		\$392,893.76
Guaranty fund.....	18,400.00		18,400.00
Surplus.....	17,267.56		17,267.56
Premium on stocks and bonds.....	1,940.00		
	\$430,501.32		\$428,561.32

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$339,290.33	\$339,290.33	\$339,290.33
Loans secured by Western city mortgages	58,300.00	58,300.00	58,300.00
Loans secured by local real estate..	3,575.00	3,575.00	3,575.00
Loans on personal security.....	6,733.00	6,733.00	6,733.00
Loans on collateral security.....	1,520.00	1,520.00	1,520.00
County, city, town, and district bonds.....	4,580.00	4,000.00	3,850.00
Railroad bonds.....	6,600.00	6,000.00	5,390.00
Railroad stock	200.00	400.00	200.00
Manufacturing stock.....	700.00	1,400.00	700.00
Balance on deposit in First National Bank, Boston.	3,582.32	3,582.32	3,582.32
Real estate acquired or held by foreclosure.....	3,275.48	3,275.48	3,275.48
Cash on hand.....	2,145.19	2,145.19	2,145.19
	\$430,501.32	\$430,221.32	\$428,561.32

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$29,764.75
Deduct expenses for 1886	\$1,250.79
Deduct state tax for 1886	3,700.25
	<u>4,951.04</u>
Net profits to be accounted for	\$24,813.71
Dividend of 2½ per cent, June 30, 1886	\$9,052.60
Dividend of 2½ per cent, Dec. 31, 1886	9,603.50
Carried to guaranty fund	1,600.00
Balance of profits for 1886	4,557.61
Net profits (as above) accounted for	<u>\$24,813.71</u>

Guaranty fund Jan. 1, 1886	.	.	\$18,400.00	
Other undivided profits Jan. 1, 1886	.	.	7,732.75	
Total surplus profits Jan. 1, 1886	.	.	————	\$26,132.75
Guaranty fund Jan. 1, 1887	.	.	\$20,000.00	
Other undivided profits Jan. 1, 1887	.	.	12,290.36	
Total surplus profits Jan. 1, 1887	.	.	————	32,290.36
				<hr/>
Increase for the year 1886	.	.	.	\$6,157.61

Surplus profits — Jan. 1, 1883, \$14,079; Jan. 1, 1884, \$17,612; Jan. 1, 1885, \$21,020; Jan. 1, 1886, \$26,132; Jan. 1, 1887, \$32,290.

Incorporated 1869. Charter perpetual.

Examination completed Oct. 30, 1886, by George E. Gage.

Trustees — S. W. Rollins, E. Stevens, J. F. Beede, E. Bickford, C. P. St. Clair, R. S. Keniston.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, June 6, 1874. Sureties of bond are able to respond. Bond deposited with trustees for safe-keeping.

Annual compensation of treasurer, \$1,000.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by S. W. Rollins, J. F. Beede, E. Stevens.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,116; increase since last examination by Bank Commissioners, 81.

Amount of deposits, \$392,893.76; increase since last examination, \$39,992.47.

Number of single loans of \$1,000 or less to separate parties in the State, 45.

Total amount of loans, \$409,418.33.

Total amount of stocks and bonds, \$10,140.

Largest amount loaned to any individual, corporation, or company, \$6,000.

Amount of assets with interest unpaid for over six months, \$900.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$16,503.48.

Total amount loaned or invested in New England, \$17,903.48.

Total amount loaned or invested out of New England, \$404,930.33.

Total amount loaned or invested drawing 4 per cent interest, \$1,400.

Total amount loaned or invested drawing 5 per cent interest,
\$1,400.

Total amount loaned or invested drawing 6 per cent interest,
\$9,000.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$11,250.

Total amount loaned or invested drawing 7 per cent interest,
\$388,368.33.

Total amount loaned or invested drawing 8 per cent interest,
\$9,800.

Dividends for the year ending Dec. 31, 1886: June 30, 1886, $2\frac{1}{2}$
per cent, \$9,052.60; Dec. 31, 1886, $2\frac{1}{2}$ per cent, \$9,603.50.

Total expense of institution for the twelve months ending Dec. 31,
1886, \$1,305.72.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$61,615.10.

Amount of dividends declared since last examination, \$17,708.55.

Amount paid on account of deposits since last examination,
\$39,331.18.

SCHEDULE OF BONDS AND STOCKS OF THE MEREDITH VILLAGE
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Philadelphia & Reading, 7s.....	\$1,265.00	\$1,000.00	\$1,000.00
Jackson, Lansing & Saginaw, 8s....	4,480.00	4,000.00	4,090.00
Consolidated R. R. of Vermont, 5s..	855.00	1,000.00	300.00
	\$6,600.00	\$6,000.00	\$5,390.00
CITY.			
Minneapolis, Minn., 7s.....	\$2,240.00	\$2,000.00	\$1,850.00
Grand Rapids, Mich., 8s.....	2,340.00	2,000.00	2,000.00
	\$4,580.00	\$4,000.00	\$3,850.00
STOCKS.			
RAILROAD.			
Consolidated R. R. of Vermont.....	\$200.00	\$400.00	\$200.00
MANUFACTURING.			
Meredith Mechanics' Association..	\$700.00	\$1,400.00	\$700.00

MERRIMACK COUNTY SAVINGS BANK. — CONCORD.

LYMAN D. STEVENS, *President.*JOHN KIMBALL, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$959,670.70		\$959,670.70
Guaranty fund	40,000.00		40,000.00
Surplus	25,409.07		25,409.07
Premium on stocks and bonds	41,753.25		
	\$1,066,833.02		\$1,025,079.77

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$312,162.00	\$312,162.00	\$312,162.00
Loans secured by local real estate	109,915.50	109,915.50	109,915.50
Loans on personal security	66,300.00	66,300.00	66,300.00
Loans on collateral security	57,897.87	57,897.87	57,897.87
County, city, town, and district bonds	83,300.00	77,750.00	77,780.00
Railroad bonds	197,360.00	183,000.00	184,315.00
Railroad stock	78,355.00	67,500.00	65,876.75
Bank stock	18,320.00	10,200.00	15,910.00
Manufacturing stock	800.00	800.00	800.00
Miscellaneous bonds	90,750.00	90,000.00	89,800.00
Miscellaneous stocks	32,750.00	23,400.00	25,400.00
Balance on deposit in national banks	13,750.88	13,750.88	13,750.88
Real estate acquired or held by foreclosure	2,800.00	2,800.00	2,800.00
Cash on hand	2,371.77	2,371.77	2,371.77
	\$1,066,833.02	\$1,017,848.02	\$1,025,079.77

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$66,439.55
Deduct expenses for 1886	\$4,800.90
Deduct state tax for 1886	8,446.19
Deduct items charged off	20,836.20
	<u>34,083.29</u>
Net profits to be accounted for	\$32,356.26

Dividend of 4 per cent, Oct. 1, 1886	. \$32,987.94
Extra dividend of $2\frac{4}{10}$ per cent	. 11,284.95
	<hr/>
	\$44,272.89
Amount from surplus	. 11,916.63
	<hr/>
Net profit (as above) accounted for	. \$32,356.26
Guaranty fund Jan. 1, 1886	. \$40,000.00
Other undivided profits Jan. 1, 1886	. 26,244.88
Total surplus profits Jan. 1, 1886	. \$66,244.88
Guaranty fund Jan. 1, 1887	. \$40,000.00
Other undivided profits Jan. 1, 1887	. 11,428.25
Total surplus profits Jan. 1, 1887	. 51,428.25
	<hr/>
Decrease for the year 1886	. \$14,816.63
Surplus profits — Jan. 1, 1883, \$39,327.94 ; Jan. 1, 1884, \$46,-469.18 ; Jan. 1, 1885, \$53,838.96 ; Jan. 1, 1886, \$66,244.88 ; Jan. 1, 1887, \$51,428.25.	
Incorporated 1867. Charter perpetual.	
Examination completed Feb. 24, 1887, by George E. Gage and Charles E. Cooper.	
<i>Vice-President</i> — William M. Chase.	
<i>Trustees</i> — John M. Hill, W. Odlin, George A. Cummings, James L. Masons, H. W. Stevens, George W. Crockett, Daniel Holden, L. A. Smith, L. H. Carroll, Benjamin A. Kimball, Charles H. Amsden, John Kimball, Isaac A. Hill.	
Treasurer's bond \$100,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, April 13, 1883. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.	
<i>Clerk</i> — Frank P. Andrews.	
Annual compensation of treasurer, \$2,500.	
Annual compensation of clerk paid by treasurer.	
Officers have taken their official oath.	
Indebtedness of trustees as principal, \$1,000 ; as surety, \$11,700, by unanimous consent of trustees.	
Loans and investments are made by L. D. Stevens, W. Odlin, L. A. Smith, and John Kimball.	
Reports are made as required by law.	
This bank receives $2\frac{1}{2}$ per cent interest on its deposits in Boston bank.	
Number of depositors, 2,421 ; increase since last examination by Bank Commissioners, 162.	
Amount of deposits, \$959,670.70 ; increase since last examination, \$101,584.04.	

Number of single loans of \$1,000 or less to separate parties in the State, 110.

Total amount of loans, \$546,275.37.

Total amount of stocks and bonds, \$459,881.75.

Largest amount loaned to any individual, corporation, or company, \$15,000.

Amount of assets with interest unpaid for over six months, \$11,500.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$256,223.37.

Total amount loaned or invested in New England, \$267,023.37.

Total amount loaned or invested out of New England, \$741,933.75.

Total amount loaned or invested drawing 4 per cent interest, \$7,800.

Total amount loaned or invested drawing 5 per cent interest, \$7,000.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$7,000.

Total amount loaned or invested drawing 6 per cent interest, \$431,788.37.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$21,400.

Total amount loaned or invested drawing 7 per cent interest, \$311,637.

Total amount loaned or invested drawing 8 per cent interest, \$166,550.

Total amount loaned or invested drawing 9 per cent interest, \$8,450.

Total amount loaned or invested drawing 10 per cent interest, \$12,000.

Amount invested from which no income has been received during the year, \$28,500.

Dividends for the year ending Dec. 31, 1886: 4 per cent Oct. 1, 1886, \$32,987.94.

Extra dividend of $2\frac{4}{10}$ per cent, amounting to \$11,284.95, declared 1886.

Total expense of institution for the twelve months ending Feb. 24, 1887, \$3,361.39.

Amount charged off as losses since last examination, \$5,881.20.

Amount of other taxes, \$502.

Amount of deposits received since last examination, \$216,206.

Amount of dividends declared since last examination, \$44,272.89.

Amount paid on account of deposits since last examination, \$158,894.85.

SCHEDULE OF BONDS AND STOCKS OF THE MERRIMACK COUNTY
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago, Milwaukee & St. Paul, 7s..	\$6,000.00	\$5,000.00	\$5,400.00
Jackson, Lansing & Saginaw, 8s....	5,600.00	5,000.00	5,000.00
Union Pacific, 8s.....	34,350.00	30,000.00	31,100.00
Republican Valley, 6s.....	11,660.00	11,000.00	11,000.00
Chicago, Milwaukee & St. Paul, 6s..	14,160.00	12,000.00	12,900.00
Dixon, Peoria & Hannibal, 8s.....	6,360.00	6,000.00	5,950.00
Burlington & Missouri River, 7s....	18,560.00	16,000.00	15,380.00
Illinois Grand Trunk, 8s.....	5,940.00	5,500.00	5,500.00
New Mexico & Southern Pacific, 7s..	1,250.00	1,000.00	1,000.00
Kansas City, Lawrence & South'n, 6s	14,560.00	13,000.00	12,730.00
Central Pacific, 6s.....	5,225.00	5,000.00	4,900.00
Brunswick & Chillicothe, 6s.....	13,500.00	13,500.00	13,460.00
Ottawa, Oswego & Fox River Val- ley, 8s.....	12,800.00	10,000.00	10,600.00
Union Pacific, 6s.....	9,540.00	9,000.00	9,000.00
Utah Central, 6s.....	16,200.00	20,000.00	20,000.00
Quincy & Warsaw, 8s.....	8,720.00	8,000.00	8,000.00
Cincinnati, Lebanon & Northern, 5s	2,000.00	2,000.00	2,000.00
Burlington & Missouri River, 4s....	4,650.00	5,000.00	4,400.00
Chicago, Burlington & Northern, 5s	5,225.00	5,000.00	5,000.00
Kansas Pacific, 6s.....	1,060.00	1,000.00	995.00
	\$197,360.00	\$183,000.00	\$184,315.00
COUNTY.			
Jasper, Ill., 7s.....	\$10,700.00	\$10,000.00	\$9,400.00
Douglas, Ill., 7s.....	7,210.00	7,000.00	6,250.00
	\$17,910.00	\$17,000.00	\$15,650.00
SCHOOL DISTRICT.			
Saline County, No. 23, Kan., 7s.....	\$750.00	\$750.00	\$740.00
CITY.			
East St. Louis, Ill., 10s.....	\$4,500.00	\$5,000.00	\$5,000.00
Marshalltown, Io., 8s.....	14,690.00	13,000.00	13,500.00
Minneapolis, Minn., 7s.....	2,500.00	2,000.00	2,150.00
Kokomo, Ind., 8s.....	6,000.00	5,000.00	5,100.00
Cincinnati, O., 7s.....	6,500.00	5,000.00	5,500.00
Kansas City, Mo., 8s.....	12,500.00	10,000.00	10,000.00
Brookville, Kan., 10s.....	500.00	500.00	500.00
	\$47,190.00	\$40,500.00	\$41,750.00
TOWNSHIP.			
Lake, Ill., 7s.....	\$9,450.00	\$9,000.00	\$9,200.00
Lakeland, Minn., 7s.....	5,000.00	5,000.00	5,000.00
Monticello, Ind., 7s.....	2,500.00	5,000.00	4,940.00
Erie City, Kan., 7s.....	500.00	500.00	500.00
	\$17,450.00	\$19,500.00	\$19,640.00
MISCELLANEOUS.			
Iowa Loan and Trust Co. debent- ures, 6s.....	\$25,000.00	\$25,000.00	\$25,000.00
Danville Water Co., Ill., 6s.....	10,000.00	10,000.00	9,750.00
Parsons Water Co., Kan., 6s.....	5,000.00	5,000.00	4,900.00
Brainerd Water Co., Minn., 7s.....	5,500.00	5,000.00	5,000.00
Clay Centre Water Co., Kan., 7s..	10,000.00	10,000.00	10,000.00
Fort Plain Water Co., N. Y., 6s.....	5,000.00	5,000.00	5,000.00
<i>Amount carried forward.....</i>	\$60,500.00	\$60,000.00	\$59,650.00

SCHEDULE OF BONDS AND STOCKS OF THE MERRIMACK COUNTY
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS. — <i>Continued.</i>			
<i>Amount brought forward.....</i>	\$60,500.00	\$60,000.00	\$59,650.00
Ann Arbor Water Co., Mich., 6s.....	5,000.00	5,000.00	5,000.00
National Water-works, N. Y., 6s.....	5,000.00	5,000.00	4,900.00
Minneapolis Gas-light Co., Minn., 6s	5,250.00	5,000.00	5,250.00
New Hampshire Trust Co. debentures, 6s.....	10,000.00	10,000.00	10,000.00
Winfield Gas Co., Kan., 7s.....	5,000.00	5,000.00	5,000.00
	\$90,750.00	\$90,000.00	\$89,800.00
STOCKS.			
BANK.			
First National, Concord.....	\$8,750.00	\$3,500.00	\$6,550.00
Second National, Nashua.....	1,320.00	1,200.00	1,200.00
Amoskeag National, Manchester. .	2,500.00	2,000.00	2,760.00
New Hampshire Nat., Portsmouth.	500.00	500.00	600.00
National State Capital, Concord....	5,250.00	3,000.00	4,800.00
	\$18,320.00	\$10,200.00	\$15,910.00
RAILROAD.			
Fort Wayne & Jackson.....	\$7,000.00	\$7,000.00	\$4,786.75
Chicago, Burlington & Quincy.....	42,000.00	30,000.00	29,730.00
Chicago & Alton.....	14,300.00	10,000.00	11,000.00
Atchison, Topeka & Santa Fé.....	530.00	500.00	500.00
Boston, Concord & Montreal.....	10,525.00	10,000.00	10,000.00
Cincinnati, Lebanon & Northern...	4,000.00	10,000.00	9,860.00
	\$78,355.00	\$67,500.00	\$65,876.75
MISCELLANEOUS.			
Iowa Loan and Trust Co.....	\$6,250.00	\$5,000.00	\$5,000.00
Board of Trade Building, Concord.	3,400.00	3,400.00	3,400.00
Quincy Railroad Bridge.....	17,500.00	10,000.00	12,000.00
Muscatine Mortgage and Trust Co..	3,600.00	3,000.00	3,000.00
Kansas Loan and Trust Co.....	2,000.00	2,000.00	2,000.00
	\$32,750.00	\$23,400.00	\$25,400.00
MANUFACTURING.			
Sagamon Manufacturing Co., Fall River, Mass.....	\$800.00	\$800.00	\$800.00

MERRIMACK RIVER SAVINGS BANK.—MANCHESTER.

FREDERICK SMYTH, *President*. FREDERICK SMYTH, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors	\$2,217,217.28		\$2,217,217.28
Guaranty fund	110,000.00		110,000.00
Surplus	49,241.95		49,241.95
Premium on stocks and bonds.....	213,477.46		
	<u>\$2,589,936.69</u>		<u>\$2,376,459.23</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$448,147.40	\$448,147.40	\$448,147.40
Loans secured by local real estate.	100,623.31	100,623.31	100,623.31
Loans on personal security	93,051.25	93,051.25	93,051.25
Loans on collateral security.....	114,160.16	114,160.16	114,160.16
County, city, town, and district bonds.....	594,271.43	531,101.45	501,912.59
Railroad bonds.....	\$56,260.00	764,500.00	773,537.50
Railroad stock	91,320.00	63,500.00	63,500.00
Bank stock.....	122,628.00	97,800.00	115,866.88
Manufacturing stock.....	5,260.00	2,600.00	2,345.00
Miscellaneous bonds.....	86,500.00	86,000.00	85,600.00
Miscellaneous stocks.....	900.00	900.00	900.00
Balance on deposit in First Na- tional Bank, Manchester.....	58,538.78	58,538.78	58,538.78
Balance on deposit with Tower, Giddings & Co.....	18,276.36	18,276.36	18,276.36
	<u>\$2,589,936.69</u>	<u>\$2,379,198.71</u>	<u>\$2,376,459.23</u>

Statement of earnings for the year ending Oct. 1, 1886.

Earnings for the year 1886 . . .	\$129,590.96
Deduct expenses for 1886 . . .	\$5,281.33
Deduct state tax for 1886 . . .	20,880.96
	<u>26,162.29</u>

Net profits to be accounted for . . .	\$103,428.67
Dividend of 5 per cent, Oct. 1, 1886 .	\$100,498.08
Balance of profits for 1886 . . .	2,930.59
Net profits (as above) accounted for .	<u>\$103,428.67</u>

Guaranty fund Oct. 1, 1885	\$110,000.00
Other undivided profits Oct. 1, 1885	5,993.77
Total surplus profits Oct. 1, 1885	<u>\$115,993.77</u>
Guaranty fund Oct. 1, 1886	\$110,000.00
Other undivided profits Oct. 1, 1886	8,924.36
Total surplus profits Oct. 1, 1886	<u>118,924.36</u>
Increase for the year 1886	\$2,930.59

Surplus profits — Jan. 1, 1883, \$99,083.73; Jan. 1, 1884, \$132,124.27; Feb. 1, 1885, \$149,127.59; Feb. 1, 1886, \$163,516.78; Oct. 1, 1886, \$118,924.36.

Incorporated 1858. Charter perpetual.

Examination completed Jan. 6, 1887, by George E. Gage.

Vice-President — F. B. Eaton.

Trustees — Frederick Smyth, Wm. F. Head, John B. Clarke, John L. Kelley, J. M. Varnum, Thomas Wheat, Charles F. Morrill, Gilbert P. Whitman, Frank Dowst, David Cross, A. C. Heath, M. V. B. Edgerly, Charles H. Bartlett, Joseph F. Kennard, F. Higgins, H. Sanderson, Wm. Crane, John Porter.

Treasurer's bonds \$130,000, copies of which are on file in the office of secretary of state and on records of the bank. Date of bonds, Sept. 1, 1869, Jan. 1, 1884. Sureties of bonds are able to respond. Bonds deposited with F. B. Eaton for safe-keeping.

Clerks — A. F. Emerson, F. B. Eaton, Christina Holmes.

Annual compensation of treasurer, \$5,164.20.

Annual compensation of clerks paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$35,461.60; as surety, \$2,550, by unanimous consent of trustees.

Loans and investments are made by F. Smyth, F. B. Eaton, Chas. F. Morrill.

Reports are made as required by law.

This bank receives 4 per cent interest on its deposits in Boston.

Number of depositors, 4,944; increase since last examination by Bank Commissioners, 221.

Amount of deposits, \$2,217,217.28; increase since last examination, \$127,871.01.

Amount of bank's assets in Boston for safe-keeping, \$1,380,000.

Number of single loans of \$1,000 or less to separate parties in the State, 67.

Total amount of loans, \$755,982.12.

Total amount of stocks and bonds, \$1,543,661.97.

Largest amount loaned to any individual, corporation, or company, \$32,126.14.

Amount of assets with interest unpaid for over six months,
\$23,112.38.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$635,246.60.

Total amount loaned or invested in New England, \$637,446.60.

Total amount loaned or invested out of New England, \$2,299,644.09.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest,
\$10,000.

Total amount loaned or invested drawing 5 per cent interest,
\$21,000.

Total amount loaned or invested drawing 6 per cent interest,
\$1,022,334.72.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$33,950.

Total amount loaned or invested drawing 7 per cent interest,
\$711,268.73.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest,
\$53,000.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$19,428.67.

Total amount loaned or invested drawing 8 per cent interest,
\$409,800.

Total amount loaned or invested drawing 10 per cent interest,
\$20,701.43.

Amount invested from which no income has been received during
the year, \$900.

Dividends for the year ending Dec. 31, 1886: Oct. 1, 1886,
\$100,498.08.

No extra dividend declared.

Total expense of institution for the twelve months ending Dec. 31,
1886, \$6,312.75.

Amount charged off as losses since last examination, nothing.

No other taxes.

Amount of deposits received since last examination, \$333,543.28.

Amount of dividends declared since last examination, \$100,498.08.

Amount paid on account of deposits since last examination,
\$306,170.35.

SCHEDULE OF BONDS OF THE MERRIMACK RIVER SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago & Northwestern, 6s.....	\$59,500.00	\$50,000.00	\$50,000.00
Kalamazoo & South Haven, 8s.....	72,800.00	70,000.00	70,000.00
Utah Southern, 7s.....	17,200.00	20,000.00	21,000.00
Kansas Pacific, 6s.....	11,500.00	10,000.00	10,425.00
Chicago, Milwaukee & St. Paul (Dakota & Hastings Div.), 7s.....	124,500.00	100,000.00	110,100.00
Chicago, Milwaukee & St. Paul (Wisconsin Valley Div.), 6s.....	50,175.00	45,000.00	45,550.00
Chicago, Milwaukee & St. Paul (Southern Div.), 6s.....	50,310.00	43,000.00	43,000.00
Atchison, Topeka & Santa Fé, 5s...	20,055.00	21,000.00	20,790.00
Atchison, Topeka & Santa Fé, 4½s..	9,700.00	10,000.00	9,375.00
Boston, Concord & Montreal, 7s....	53,250.00	50,000.00	50,000.00
Boston, Concord & Montreal, 6s....	73,260.00	66,500.00	66,500.00
Jackson, Lansing & Saginaw, 8s....	5,200.00	5,000.00	5,000.00
St. Paul & Northern Pacific, 6s.....	93,960.00	81,000.00	80,847.50
Missouri Valley & Blair Ry. and Bridge Co. (guar. by Chicago & Northwestern), 6s.....	93,600.00	78,000.00	78,000.00
Atchison, Topeka & Santa Fé, 6s....	75,250.00	70,000.00	70,000.00
James River Valley (guar. by Northern Pacific), 6s.....	21,000.00	20,000.00	20,950.00
Toledo & Ann Arbor, 6s.....	25,000.00	25,000.00	22,000.00
	\$856,260.00	\$764,500.00	\$773,537.50
CITY.			
Chicago, Ill., 7s.....	\$146,330.00	\$130,000.00	\$127,562.50
Manchester, N. H., 6s.....	1,160.00	1,000.00	1,000.00
Minneapolis, Minn., 7s.....	7,500.00	6,000.00	5,400.00
Minneapolis, Minn., 8s..	48,100.00	37,000.00	37,000.00
Indianapolis, Ind., 6s.....	38,850.00	37,000.00	31,487.00
Canon, Col., 7s.....	18,000.00	18,000.00	17,880.00
St. Louis, Mo., 6s.....	108,220.00	103,000.00	89,008.00
Newport, Ky., 7 3-10s.....	58,830.00	53,000.00	52,760.00
Petersburg, Va., 8s.....	120,000.00	100,000.00	95,000.00
Bathgate (town), Dak., 10s.....	1,000.00	1,000.00	1,000.00
Topeka scrip, Kan., 10s.....	1,601.43	1,601.43	1,601.43
	\$549,591.43	\$487,601.43	\$459,698.93
COUNTY.			
Jefferson, 7s.....	\$14,700.00	\$14,000.00	\$13,878.66
St. Louis, 6s.....	12,480.00	12,000.00	11,460.00
Bernalillo, 6s.....	5,000.00	5,000.00	5,000.00
Socorro, 6s.....	12,500.00	12,500.00	11,875.00
	\$44,680.00	\$43,500.00	\$42,213.16
MISCELLANEOUS.			
Salina Water-works, 6s.....	\$10,500.00	\$10,000.00	\$9,800.00
Topeka Water Supply Co., 6s.....	10,000.00	10,000.00	9,800.00
Topeka City Railway, 6s.....	11,000.00	11,000.00	11,000.00
New Hampshire Trust Co. deb., 6s.	30,000.00	30,000.00	30,000.00
Mason & Tazewell Special Drainage District, 7s.....	10,000.00	10,000.00	10,000.00
Kansas Investment Co. debent., 6½s.	15,000.00	15,000.00	15,000.00
	\$86,500.00	\$86,000.00	\$85,600.00

SCHEDULE OF STOCKS OF THE MERRIMACK RIVER SAVINGS BANK.

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
First National, Manchester.....	\$104,875.00	\$83,900.00	\$102,159.38
Merchants' National, Manchester..	10,400.00	8,000.00	7,807.50
Amoskeag National, Manchester...	4,625.00	3,700.00	3,700.00
National Bank of Commonwealth..	2,728.00	2,200.00	2,200.00
	\$122,628.00	\$97,800.00	\$115,866.88
MANUFACTURING.			
Amoskeag.....	\$4,600.00	\$2,000.00	\$1,945.00
Amory.....	660.00	600.00	400.00
	\$5,260.00	\$2,600.00	\$2,345.00
RAILROAD.			
Pemigewasset Valley.....	\$23,520.00	\$22,400.00	\$22,400.00
Concord.....	25,500.00	10,200.00	10,200.00
Manchester & Lawrence.....	11,800.00	5,900.00	5,900.00
Suncook Valley	16,500.00	15,000.00	15,000.00
Concord & Portsmouth.....	14,000.00	10,000.00	10,000.00
	\$91,320.00	\$63,500.00	\$63,500.00
MISCELLANEOUS.			
Franklin-street Building Society...	\$900.00	\$900.00	\$900.00

MILFORD FIVE-CENT SAVINGS BANK. — MILFORD.

DEXTER S. BURNHAM, *President.* C. S. AVERILL, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$964,265.33		\$964,265.33
Guaranty fund	38,000.00		38,000.00
Surplus.....	27,956.07		27,956.07
	\$1,030,221.40		
Premium on stocks and bonds, im- paired.....	2,550.00		
	\$1,027,671.40		\$1,030,221.40

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$618,028.85	\$618,028.85	\$618,028.85
Loans secured by local real estate.	64,543.66	64,543.66	64,543.66
Loans on collateral security.....	6,025.00	6,025.00	6,025.00
Loans on collateral security (West- ern).....	10,000.00	10,000.00	10,000.00
County, city, town, and district bonds.....	237,665.00	245,600.00	245,600.00
Railroad bonds.	10,095.00	9,000.00	9,000.00
Railroad stock.....	450.00	600.00	600.00
Bank stock.....	24,940.00	21,200.00	21,200.00
Miscellaneous bonds.....	29,500.00	29,500.00	29,500.00
Miscellaneous stocks.....	7,200.00	6,500.00	6,500.00
Balance on deposit in Souhegan National Bank.....	14,019.01	14,019.01	14,019.01
Real estate purchased for the bank.	3,000.00	3,000.00	3,000.00
Real estate acquired or held by foreclosure.....	1,984.92	1,984.92	1,984.92
Cash on hand.....	219.96	219.96	219.96
	\$1,027,671.40	\$1,030,221.40	\$1,030,221.40

Statement of earnings for the year ending Jan. 31, 1887.

Earnings for the year 1886	\$67,185.55
Deduct expenses for 1886	\$2,702.44
Deduct state tax for 1886	8,426.09
Deduct items charged off	2,797.35
	<u>13,925.88</u>
Net profits to be accounted for	<u>\$53,259.67</u>

Dividend of 2½ per cent, Aug. 1, 1886	. \$20,598.69
Dividend of 2½ per cent, Feb. 1, 1887	. 21,862.04
Carried to guaranty fund . . . . .	. 3,000.00
Balance of profits for 1886 . . . . .	. 7,798.94
Net profits (as above) accounted for	. ————— \$53,259.67
Guaranty fund Jan. 1, 1886 . . . . .	. \$35,000.00
Other undivided profits Jan. 1, 1886	. 22,732.14
Total surplus profits Jan. 1, 1886	. ————— \$57,732.14
Guaranty fund Jan. 1, 1887 . . . . .	. \$38,000.00
Other undivided profits Jan. 1, 1887	. 27,531.08
Total surplus profits Jan. 1, 1887	. ————— 65,531.08
Increase for the year 1886 . . . . .	. \$7,798.94
Surplus profits — Jan. 1, 1883, \$38,767.89 ; Jan. 1, 1884, \$44,- 044.76 ; Jan. 1, 1885, \$49,783.70 ; Jan. 1, 1886, \$57,732.14 ; Jan. 1, 1887, \$65,531.08.	

Incorporated 1859. Charter perpetual.

Examination completed March 30, 1887, by George E. Gage and Charles E. Cooper.

Vice-Presidents — Wm. M. Knowlton, R. M. Wallace.

Trustees — Wm. Ramsdell, C. S. Averill, John Marvell, John E. Bruce, Wm. M. Knowlton, Dexter S. Burnham, S. P. Emerson, Robert M. Wallace, John Hadlock, Geo. E. Clark, Wm. H. W. Hinds, John A. Ober, John McLane.

Treasurer's bond \$70,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Aug. 17, 1886. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — C. E. Knight.

Annual compensation of treasurer, \$1,800.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by treasurer by direction of board of investment.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 2,648 ; increase since last examination by Bank Commissioners, 250.

Amount of deposits, \$964,265.33 ; increase since last examination, \$113,044.40.

Amount of bank's assets in Boston for safe-keeping, \$284,100.

Number of single loans of \$1,000 or less to separate parties in the State, 92.

Total amount of loans, \$698,597.51.

Total amount of stocks and bonds, \$312,400.

Largest amount loaned to any individual, corporation, or company, \$10,000.

Amount of assets with interest unpaid for over six months, \$21,200.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$108,853.58.

Total amount loaned or invested in New England, \$108,853.58.

Total amount loaned or invested out of New England, \$907,128.85.

Total amount loaned or invested drawing 3 per cent interest, \$600.

Total amount loaned or invested drawing 5 per cent interest, \$7,500.

Total amount loaned or invested drawing 6 per cent interest, \$269,158.76.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$7,700.

Total amount loaned or invested drawing 7 per cent interest, \$471,735.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$4,385.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$15,975.

Total amount loaned or invested drawing 8 per cent interest, \$221,659.80.

Total amount loaned or invested drawing 9 per cent interest, \$5,945.

Total amount loaned or invested drawing 10 per cent interest, \$17,599.15.

Dividends for the year ending Dec. 31, 1886: Aug. 1, 1886, $2\frac{1}{2}$ per cent, \$20,598.69; Feb. 1, 1887, $2\frac{1}{2}$ per cent, \$21,862.04.

Total expense of institution for the twelve months ending March 30, 1887, \$2,702.44.

Nothing charged off as losses since last examination.

Amount of other taxes, \$7.15.

Amount of deposits received since last examination, \$236,943.90.

Amount of dividends declared since last examination, \$42,460.73.

Amount paid on account of deposits since last examination, \$165,533.91.

SCHEDULE OF BONDS AND STOCKS OF THE MILFORD FIVE-CENT SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Northern Missouri, 7s.	\$2,320.00	\$2,000.00	\$2,000.00
Ogdensburg & Lake Champlain, 6s	2,100.00	2,000.00	2,000.00
Boston, Concord & Montreal, 7s....	5,675.00	5,000.00	5,000.00
	\$10,095.00	\$9,000.00	\$9,000.00
COUNTY.			
Montgomery, Ill., 6s.	\$2,000.00	\$2,000.00	\$2,000.00
Lee, Ill., 6s.	7,000.00	7,000.00	7,000.00
Adams, Ill., 6s.	3,000.00	3,000.00	3,000.00
Montgomery, Kan., 7s.	9,000.00	9,000.00	9,000.00
Montgomery, Kan., 6s.	5,000.00	5,000.00	5,000.00
Rush, Ill., 6s.	3,000.00	3,000.00	3,000.00
Polk, Neb., 10s.	5,750.00	5,000.00	5,000.00
Socorro, N. M., 7s.	14,000.00	14,000.00	14,000.00
Todd, Minn., 7s.	5,000.00	5,000.00	5,000.00
Sierra, N. M., 6s.	2,300.00	2,300.00	2,300.00
San Miguel, N. M., 10s.	5,250.00	5,000.00	5,000.00
Dawson, 7s.	5,250.00	5,000.00	5,000.00
Kingman, Kan., 6s.	5,000.00	5,000.00	5,000.00
	\$71,550.00	\$70,300.00	\$70,300.00
CITY.			
Chester, Ill., 7s.	\$6,500.00	\$6,500.00	\$6,500.00
Keokuk, Io., 6s.	3,000.00	3,000.00	3,000.00
Quincy, Ill., 6s.	3,000.00	3,000.00	3,000.00
Evansville, Ind., 7s.	6,000.00	8,000.00	8,000.00
Dubuque, Io., 6s.	3,210.00	3,000.00	3,000.00
Davenport, Io., 6s.	3,090.00	3,000.00	3,000.00
Warsaw, Ill., 6s.	5,600.00	5,600.00	5,600.00
Muscatine, Io., 6s.	15,900.00	15,900.00	15,900.00
Cherry Vale, Kan., 7s.	8,240.00	8,000.00	8,000.00
Charlestown, W. Va., 6s.	10,300.00	10,000.00	10,000.00
Wichita, Kan., 6s.	5,200.00	5,000.00	5,000.00
McGregor, Io., 5s.	2,500.00	2,500.00	2,500.00
Arkansas City, Kan., 6s.	3,000.00	3,000.00	3,000.00
	\$75,540.00	\$76,500.00	\$76,500.00
TOWNSHIP.			
Dublin, O., 6s.	\$6,000.00	\$12,000.00	\$12,000.00
Riley, O., 6s.	5,000.00	5,000.00	5,000.00
Sumner, Kan., 7s.	2,100.00	2,000.00	2,000.00
Le Roy, Kan., 6s.	5,200.00	5,200.00	5,200.00
Spring Creek, Kan., 6s.	1,500.00	1,500.00	1,500.00
Municipal of Union, Kan., 6s.	5,000.00	5,000.00	5,000.00
Elk Falls, Kan., 7s.	6,500.00	6,500.00	6,500.00
Centre, Kan., 5s.	5,000.00	5,000.00	5,000.00
Municipal of Toronto, Kan., 7s.	3,675.00	3,500.00	3,500.00
South Haven, 6s.	10,000.00	10,000.00	10,000.00
Belle Plaine, Kan., 6s.	5,000.00	5,000.00	5,000.00
	\$54,975.00	\$60,700.00	\$60,700.00
SCHOOL DISTRICT.			
Lyon County, No. 33, Kan., 6s.	\$700.00	\$700.00	\$700.00
McPherson County, No. 20, Kan., 6s.	10,500.00	10,500.00	10,500.00
Montgomery County, No. 5, Kan., 6s	4,000.00	4,000.00	4,000.00
Lake County, No. 2, Col., 8s.	2,500.00	5,000.00	5,000.00
Independent of Duluth, 6s.	10,000.00	10,000.00	10,000.00
Bent County, No. 11, Col., 8s.	7,000.00	7,000.00	7,000.00
Holt County, No. 44, Neb., 7s.	900.00	900.00	900.00
	\$35,600.00	\$38,100.00	\$38,100.00

SCHEDULE OF BONDS AND STOCKS OF THE MILFORD FIVE-CENT
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
New Hampshire Trust Co. deb., 6s.	\$10,000.00	\$10,000.00	\$10,000.00
Burlington Steam Supply, 7s.....	4,000.00	4,000.00	4,000.00
City Water-works, Omaha, 6s.....	10,000.00	10,000.00	10,000.00
Nebraska Loan & Trust Co. deb., 6s	500.00	500.00	500.00
Topeka Water Supply, 6s.....	5,000.00	5,000.00	5,000.00
	\$29,500.00	\$29,500.00	\$29,500.00
STOCKS.			
BANK.			
Souhegan National, Milford.....	\$22,440.00	\$18,700.00	\$18,700.00
Citizens' National, Wichita.....	2,500.00	2,500.00	2,500.00
	\$24,940.00	\$21,200.00	\$21,200.00
RAILROAD.			
Peterborough	\$450.00	\$600.00	\$600.00
MISCELLANEOUS.			
New Hampshire Trust Co.....	\$4,200.00	\$4,000.00	\$4,000.00
Nebraska Loan and Trust Co.....	3,000.00	2,500.00	2,500.00
	\$7,200.00	\$6,500.00	\$6,500.00

MONADNOCK SAVINGS BANK. — EAST JAFFREY.

O. H. BRADLEY, *President*.PETER UPTON, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$451,626.70		\$451,626.70
Guaranty fund.....	15,152.92		15,152.92
Surplus	4,757.00		4,757.00
Premium on stocks and bonds.. ...	7,514.86		
	\$479,051.48		\$471,536.62

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$224,419.65	\$224,419.65	\$224,419.65
Loans secured by local real estate.	74,795.68	74,795.68	74,795.68
Loans on personal security.....	4,801.46	4,801.46	4,801.46
Loans on personal security (West- ern).....	2,000.00	2,000.00	2,000.00
Loans on collateral security.....	14,725.00	14,725.00	14,725.00
County, city, town, and district bonds.....	44,346.00	41,300.00	40,470.00
Railroad bonds.....	38,950.00	37,000.00	36,877.52
Bank stock.....	14,239.00	11,200.00	14,362.62
Miscellaneous bonds.....	47,440.00	46,000.00	46,000.00
Miscellaneous stocks.....	5,250.00	5,000.00	5,000.00
Balance on deposit in Monadnock National Bank.....	4,009.86	4,009.86	4,009.86
Real estate acquired or held by foreclosure.....	2,224.83	2,224.83	2,224.83
Bank fixtures.....	1,850.00	1,850.00	1,850.00
	\$479,051.48	\$469,326.48	\$471,536.62

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$31,757.78
Deduct expenses for 1886	\$1,944.39
Deduct state tax for 1886	4,364.98
Deduct items charged off	1,061.71
	<u>7,371.08</u>
Net profits to be accounted for	\$24,386.70
Dividend of 3 per cent, July, 1886	\$10,750.68
Dividend of 3 per cent, January, 1887	10,778.97

Carried to guaranty fund	\$2,438.66	
Balance of profits for 1886	418.39	
Net profits (as above) accounted for	—————	\$24,386.70
Guaranty fund Jan. 1, 1886	\$12,714.26	
Other undivided profits Jan. 1, 1886	34.76	
Total surplus profits Jan. 1, 1886	—————	\$12,749.02
Guaranty fund Jan. 1, 1887	\$15,152.92	
Other undivided profits Jan. 1, 1887	418.39	
Total surplus profits Jan. 1, 1887	—————	15,571.31
<hr/>		
Increase for the year 1886		\$2,822.29
Surplus profits — Jan. 1, 1883, \$9,497.70 ; Jan. 1, 1884, \$11,- 333.01 ; Jan. 1, 1885, \$11,070.09 ; Jan. 1, 1886, \$12,748.55 ; Jan. 1, 1887, \$15,571.31.		

Incorporated 1869. Charter perpetual.

Examination completed Feb. 9, 1887, by Charles E. Cooper.

Vice-Presidents — Benjamin Pierce, J. S. Lacy.

Trustees — O. H. Bradley, Benjamin Pierce, J. S. Lacy, G. A. Underwood, J. B. Shedd, Alfred Sawyer, D. P. Emory, Julius Cutter, R. H. Kittredge, A. J. Bemis, H. B. Aldrich, J. E. Prescott, W. W. Emery.

Treasurer's bond \$45,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 24, 1883. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Mrs. C. L. Rich.

Annual compensation of treasurer, \$1,200.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$3,370.92; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by O. H. Bradley, Benjamin Pierce, J. S. Lacy, D. P. Emery, P. Upton.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 992; decrease since last examination by Bank Commissioners, 4.

Amount of deposits, \$451,626.70 ; increase since last examination, \$14,705.22.

Amount of bank's assets in Boston for safe-keeping, \$123,347.52.

Number of single loans of \$1,000 or less to separate parties in the State, 113.

Total amount of loans, \$320,741.79.

Total amount of stocks and bonds, \$146,720.

Largest amount loaned to any individual, corporation, or company, \$25,000.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Amount of assets with interest unpaid for over six months, \$9,405.56.

Total amount loaned or invested in New Hampshire, \$131,259.59.

Total amount loaned or invested in New England, \$131,259.59.

Total amount loaned or invested out of New England, \$336,267.17.

Total amount loaned or invested drawing 6 per cent interest, \$216,922.14.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$400.

Total amount loaned or invested drawing 7 per cent interest, \$198,984.65.

Total amount loaned or invested drawing 8 per cent interest, \$43,435.

Total amount loaned or invested drawing 9 per cent interest, \$1,000.

Amount invested from which no income has been received during the year, \$4,574.83.

Dividends for the year ending Dec. 31, 1886: July, 1886, 3 per cent, \$10,750.68; January, 1887, 3 per cent, \$10,778.97.

Total expense of institution for the twelve months ending Feb. 9, 1887, \$1,944.39.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, \$167.85.

Amount of deposits received since last examination, \$46,350.14.

Amount of dividends declared since last examination, \$21,529.65.

Amount paid on account of deposits since last examination, \$53,174.57.

SCHEDULE OF BONDS AND STOCKS OF THE MONADNOCK SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Oregon Railway & Nav. Co., 6s.....	\$3,315.00	\$3,000.00	\$2,977.50
Fitchburg, 6s.....	5,850.00	5,000.00	5,243.75
Cheshire, 6s..	14,850.00	13,500.00	13,500.00
Boston, Concord & Montreal, 6s....	5,325.00	5,000.00	5,087.50
Kansas Pacific, 6s.....	2,120.00	2,000.00	1,952.30
Oregon Improvement Co., 6s.....	2,790.00	3,000.00	2,973.75
New York & New England, 6s.....	4,700.00	5,000.00	5,000.00
Toledo, Delphos & Burlington, 6s..	000.00	500.00	142.72
	\$38,950.00	\$37,000.00	\$36,877.52
CITY.			
Pomeroy, O., 8s.....	\$1,000.00	\$1,000.00	\$1,000.00
Grand Rapids, Mich., 8s.....	2,340.00	2,000.00	1,950.00
Bay City, Mich., 8s.....	1,180.00	1,000.00	970.00
Kansas City, Mo., 8s.....	1,250.00	1,000.00	1,000.00
Toledo, O., 6s.....	3,150.00	3,000.00	3,090.00
Marietta, O., 8s.....	1,000.00	1,000.00	995.00
Peoria, Ill., 7s.....	2,100.00	2,000.00	2,000.00
Peoria, Ill., 7s.....	2,040.00	2,000.00	1,980.00
St. Paul, Minn., 7s.....	2,300.00	2,000.00	1,935.00
Brazil, Ind., 9s.....	1,000.00	1,000.00	1,000.00
Chicago, Ill., 7s.....	3,450.00	3,000.00	2,835.00
Kokomo, Ind., 8s.....	1,000.00	1,000.00	1,000.00
Muskegon, Mich., 8s.....	1,725.00	1,500.00	1,500.00
Washington, Ind., 8s.....	1,100.00	1,000.00	1,030.00
Jacksonville, Ill., 6s.....	1,500.00	1,500.00	1,537.50
Erie, Penn., 7s.....	2,100.00	2,000.00	1,840.00
Saginaw, Mich., 8s.....	2,200.00	2,000.00	1,937.50
Dubuque, Io., 6s.....	3,210.00	3,000.00	2,670.00
	\$33,645.00	\$31,000.00	\$30,270.00
TOWNSHIP.			
Big Bend, Kan., 8s.....	\$2,856.00	\$2,800.00	\$2,800.00
Wahpeton, Dak., 8s.....	3,180.00	3,000.00	3,000.00
Charlotte, N. Y., 7s.....	1,545.00	1,500.00	1,450.00
Gerry, N. Y., 7s.....	1,050.00	1,000.00	950.00
Dunkirk, N. Y., 7s.....	1,070.00	1,000.00	1,000.00
	\$9,701.00	\$9,300.00	\$9,200.00
SCHOOL DISTRICT.			
Plum Creek, Neb., 7s.....	\$1,000.00	\$1,000.00	\$1,000.00
MISCELLANEOUS.			
Des Moines Street Railway, Io., 6s..	\$3,150.00	\$3,000.00	\$3,000.00
Brainerd Water-works, Minn., 7s...	11,000.00	10,000.00	10,000.00
Clinton " Io., 7s.....	9,270.00	9,000.00	9,000.00
Ottumwa " Io., 6s.....	5,120.00	5,000.00	5,000.00
Towanda " Penn., 6s...	3,000.00	3,000.00	3,000.00
National " N. Y., 6s....	4,900.00	5,000.00	5,000.00
Mt. Pleasant " N. Y., 6s....	6,000.00	6,000.00	6,000.00
Wahpeton " Dak., 6s....	5,000.00	5,000.00	5,000.00
	\$47,440.00	\$46,000.00	\$46,000.00

SCHEDULE OF BONDS AND STOCKS OF THE MONADNOCK SAVINGS
BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
Connecticut River National, Charlestown	\$1,320.00	\$1,000.00	\$1,295.00
Cheshire National, Keene.....	3,080.00	2,200.00	2,731.00
Monadnock National, East Jaffrey.	7,360.00	6,400.00	8,262.62
Peterborough National, Peter- borough	399.00	300.00	384.00
Keene National	2,080.00	1,300.00	1,690.00
	\$14,239.00	\$11,200.00	\$14,362.62
MISCELLANEOUS.			
New Hampshire Trust Co.....	\$5,250.00	\$5,000.00	\$5,000.00

NASHUA SAVINGS BANK. — NASHUA.

W. W. BAILEY, *President.*V. C. GILMAN, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$2,781,765.11		\$2,781,765.11
Guaranty fund.....	130,000.00		130,000.00
Surplus.....	92,068.16		92,068.16
Premium on stocks and bonds.....	229,907.48		
	\$3,233,740.75		\$3,003,833.27

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$753,744.00	\$753,744.00	\$753,744.00
Loans secured by Western city mortgages.....	110,000.00	110,000.00	110,000.00
Loans secured by local real estate.....	249,763.03	249,763.03	249,763.03
Loans on personal security.....	39,125.00	39,125.00	39,125.00
Loans on collateral security.....	28,747.80	28,747.80	28,747.80
Loans on collateral security (Western).....	5,500.00	5,500.00	5,500.00
United States bonds.....	11,000.00	10,000.00	10,000.00
County, city, town, and district bonds.....	319,168.00	306,930.00	309,473.61
Railroad bonds.....	331,852.00	301,500.00	301,500.00
Railroad stock.....	278,940.00	281,600.00	273,804.79
Bank stock.....	382,441.00	299,990.00	300,650.00
Miscellaneous bonds.....	345,660.00	343,500.00	341,375.00
Miscellaneous stocks.....	318,875.00	222,425.12	221,225.12
Balance on deposit in Indian Head National Bank.....	27,826.21	27,826.21	27,826.21
Balance on deposit in International Trust Co., Boston.....	11,223.06	11,223.06	11,223.06
Real estate acquired or held by foreclosure.....	3,500.00	3,500.00	3,500.00
Cash on hand.....	16,375.65	16,375.65	16,375.65
	\$3,233,740.75	\$3,011,749.87	\$3,003,833.27

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	.	\$181,238.85
Deduct expenses for 1886	.	.	.	\$7,147.10	
Deduct state tax for 1886	.	.	.	25,603.22	
Deduct items charged off	.	.	.	53,375.00	
					86,125.32

Net profits to be accounted for \$95,113.53

Dividend of 4 per cent, regular, 1886	. \$98,265.61
Dividend of 1 per cent, extra, 1886	. 24,566.40
Carried to guaranty fund	. 5,000.00

	<u>\$127,832.01</u>
Amount from surplus	. 32,718.48

Net profits (as above) accounted for	. . \$95,113.53
Guaranty fund Jan. 1, 1886	. \$125,000.00
Other undivided profits Jan. 1, 1886	. 84,109.41
Total surplus profits Jan. 1, 1886	. <u>\$209,109.41</u>
Guaranty fund Jan. 1, 1887	. \$130,000.00
Other undivided profits Jan. 1, 1887	. 51,390.93
Total surplus profits Jan. 1, 1887	. <u>181,390.93</u>

Decrease for the year 1886 . . . \$27,718.48

Surplus profits — Jan. 1, 1883, \$158,022.81; Jan. 1, 1884, \$189,018.59; Jan. 1, 1885, \$190,436.73; Jan. 1, 1886, \$209,109.41; Jan. 1, 1887, \$181,390.93.

Incorporated 1854. Charter perpetual.

Examination completed April 6, 1887, by Geo. E. Gage and Chas. E. Cooper.

Trustees — W. W. Bailey, Edward Spalding, Augustus G. Reed, Perley Dodge, C. H. Campbell, V. C. Gilman, J. L. Pierce, G. C. Shattuck, J. W. Howard.

Treasurer's bond \$150,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, July 1, 1882. Sureties of bond are able to respond. Bond deposited with E. Spalding for safe-keeping.

Clerks — G. F. Andrews, M. M. Woodman, A. M. Carlton.

Annual compensation of treasurer, \$5,200.

Annual compensation of clerks paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$27,500; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by investment committee.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in Boston.

Number of depositors, 5,798; increase since last examination by Bank Commissioners, 318.

Amount of deposits, \$2,781,765.11; increase since last examination, \$245,300.59.

Amount of bank's assets in Boston for safe-keeping, \$269,000.

Number of single loans of \$1,000 or less to separate parties in the State, 192.

Total amount of loans, \$1,196,879.83.

Total amount of stocks and bonds, \$1,748,028.52.

Largest amount loaned to any individual, corporation, or company, \$27,000.

Amount of assets with interest unpaid for over six months, \$75,124.03.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$424,435.83.

Total amount loaned or invested in New England, \$525,935.83.

Total amount loaned or invested out of New England, \$2,422,472.52.

Total amount loaned or invested drawing 4 per cent interest, \$60,000.

Total amount loaned or invested drawing 4½ per cent interest, \$10,000.

Total amount loaned or invested drawing 5 per cent interest, \$29,250.

Total amount loaned or invested drawing 5½ per cent interest, \$5,000.

Total amount loaned or invested drawing 6 per cent interest, \$821,385.83.

Total amount loaned or invested drawing 6½ per cent interest, \$59,025.12.

Total amount loaned or invested drawing 7 per cent interest, \$1,046.280.

Total amount loaned or invested drawing 7½ per cent interest, \$58,000.

Total amount loaned or invested drawing 8 per cent interest, \$585,144.

Total amount loaned or invested drawing 9 per cent interest, \$3,800.

Total amount loaned or invested drawing 10 per cent interest, \$118,940.

Total amount loaned or invested drawing 12 per cent interest, \$4,000.

Total amount loaned or invested drawing 14 per cent interest, \$10,000.

Dividends for the year ending Dec. 31, 1886: 4 per cent, 1886, \$98,265.61.

Extra dividend of 1 per cent, amounting to \$24,566.40, declared in 1886.

Total expense of institution for the twelve months ending Jan. 1, 1887, \$7,147.10.

Amount charged off as losses since last examination, \$53,375.

No other taxes.

Amount of deposits received since last examination, \$629,993.88.

Amount of dividends declared since last examination, \$122,832.01.

Amount paid on account of deposits since last examination, \$507,525.30.

SCHEDULE OF BONDS AND STOCKS OF THE NASHUA SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4½s.....	\$11,000.00	\$10,000.00	\$10,000.00
RAILROAD.			
Chicago, Burlington & Quincy, 7s..	\$52,000.00	\$40,000.00	\$40,000.00
Omaha & Southwestern, 8s.....	31,250.00	25,000.00	25,000.00
Oregon Improvement Co., 6s.....	4,650.00	5,000.00	5,000.00
Cincinnati & Indiana, 7s.....	22,200.00	20,000.00	20,000.00
Ohio & West Virginia, 7s.....	11,200.00	10,000.00	10,000.00
Minneapolis & St. Louis, 7s.....	12,000.00	10,000.00	10,000.00
Chicago & Ohio River, 6s.....	1,000.00	1,000.00	1,000.00
Northern Pacific Terminal Co. of Oregon, 6s.....	2,100.00	2,000.00	2,000.00
Port Royal & Augusta, 6s.....	5,250.00	5,000.00	5,000.00
Cincinnati, Lebanon & Northern, 5s	5,000.00	5,000.00	5,000.00
Oregon Railway & Navigat'n Co., 6s	5,525.00	5,000.00	5,000.00
Western R. R. Co. of Minnesota, 7s.	11,000.00	10,000.00	10,000.00
Fort Wayne, Cincinnati & Louisville, 7s.....	4,200.00	4,000.00	4,000.00
Holly, Wayne & Monroe, 8s.....	10,000.00	10,000.00	10,000.00
Ogdensburg & Lake Champlain, 8s.	6,180.00	6,000.00	6,000.00
Marquette, Houghton & Ontonagon, 6s.....	1,065.00	1,000.00	1,000.00
Nashua & Lowell, 6s.....	1,635.00	1,500.00	1,500.00
Des Moines, Osceola & Southern, 7s	7,500.00	15,000.00	15,000.00
Chicago, Burlington & North'n, 5s..	4,180.00	4,000.00	4,000.00
Minneapolis & Duluth, 7s.....	11,000.00	10,000.00	10,000.00
Morris & Essex, 7s.....	19,180.00	14,000.00	14,000.00
Morris & Essex, 7s.....	13,750.00	11,000.00	11,000.00
Peterborough, 6s.....	5,000.00	5,000.00	5,000.00
Terre Haute & Southeastern, 7s....	11,000.00	10,000.00	10,000.00
Scioto Valley, 7s.....	10,000.00	10,000.00	10,000.00
Columbus & Toledo, 7s.....	11,600.00	10,000.00	10,000.00
Brunswick & Chillicothe, 6s.....	2,000.00	2,000.00	2,000.00
Dubuque & Dakota, 6s.....	10,000.00	10,000.00	10,000.00
Chicago, Milwaukee & St. Paul, 7s..	13,000.00	10,000.00	10,000.00
Chicago, Burlington & Quincy, 4s...	22,562.00	25,000.00	25,000.00
Chicago, Burlington & Quincy, 4s...	4,825.00	5,000.00	5,000.00
	\$331,852.00	\$301,500.00	\$301,500.00
COUNTY.			
Leavenworth, Kan., 6s.....	\$2,100.00	\$2,000.00	\$2,000.00
Lake, Col., 10s.....	5,000.00	10,000.00	10,000.00
Barnes (warrants), Dak., 10s.....	350.00	350.00	361.11
Kingman, Kan., 6s.....	7,200.00	7,200.00	7,200.00
Richardson, Neb., 8s.....	500.00	500.00	500.00
Davison, Mont., 7s.....	10,500.00	10,000.00	10,000.00
Clay, Minn., 7s.....	7,140.00	7,000.00	7,500.00
Pratt, Kan., 8s..	13,000.00	13,000.00	13,000.00
Montgomery, Io., 7s.....	8,400.00	8,000.00	8,000.00
Lee, Io., 6s.....	19,000.00	19,000.00	19,382.50
Dickey, Dak., 8s.....	3,150.00	\$3,000.00	3,000.00
	\$76,340.00	\$80,050.00	\$80,943.61
CITY.			
Fort Worth, Tex., 7s....	\$10,500.00	\$10,000.00	\$10,000.00
Peoria, Ill., 6s.....	10,000.00	10,000.00	10,000.00
Fargo, Dak., 7s.....	5,200.00	5,000.00	5,400.00
Amount carried forward.....	\$25,700.00	\$25,000.00	\$25,400.00

SCHEDULE OF BONDS AND STOCKS OF THE NASHUA SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
<i>CITY. — Continued.</i>			
<i>Amount brought forward</i>	\$25,700.00	\$25,000.00	\$25,400.00
Jacksonville, Ill., 6s..	10,000.00	10,000.00	10,000.00
Council Bluffs, Io., 8s.....	23,000.00	20,000.00	20,000.00
West Chicago Park, Ill., 7s.....	11,000.00	10,000.00	10,000.00
Burlington, Io., 8s.....	11,000.00	10,000.00	10,000.00
Litchfield, Ill., 8s.....	5,000.00	5,000.00	5,000.00
Millbank, Dak., 6s.....	6,000.00	6,000.00	6,000.00
Chester, Ill., 7s.....	1,500.00	1,500.00	1,500.00
Saginaw, Mich., 8s.....	3,300.00	3,000.00	3,000.00
Kansas City, Mo., 8s.....	37,500.00	30,000.00	30,000.00
Sandusky, O., 7s.....	15,300.00	15,000.00	15,000.00
East Saginaw, Mich., 8s.....	10,000.00	10,000.00	10,000.00
Muscatine, Io., 6s.....	12,000.00	12,000.00	12,000.00
Moorhead, Minn., 7s.....	10,900.00	10,000.00	10,800.00
Muskegon, Mich., 8s.....	10,500.00	10,000.00	10,000.00
	\$192,700.00	\$177,500.00	\$178,700.00
<i>TOWNSHIP.</i>			
Spearville, Kan., 7s.. ..	\$5,150.00	\$5,000.00	\$5,150.00
Union, Kan., 7s.....	5,150.00	5,000.00	5,000.00
Atlanta, Kan., 7s.....	11,330.00	11,000.00	11,000.00
Valley, Kan., 7s.....	4,048.00	3,930.00	3,930.00
	\$25,678.00	\$24,930.00	\$25,080.00
<i>SCHOOL DISTRICT.</i>			
Wichita, Kan., 5s.....	\$2,000.00	\$2,000.00	\$2,000.00
Codington County, Dak., 8s.....	500.00	500.00	500.00
Deuel County, Dak., 8s	500.00	500.00	500.00
Delta (Independent), Io., 6s.....	1,250.00	1,250.00	1,250.00
La Delle Township, Dak., 7s.....	2,000.00	2,000.00	2,000.00
Osceola (Independent), Io., 5½s.....	5,000.00	5,000.00	5,000.00
Richardson County, Neb., 7s.....	400.00	400.00	400.00
Strawberry Point (Indep.), Io., 6s...	2,000.00	2,000.00	2,000.00
Miles, Io., 6s.....	4,000.00	4,000.00	4,000.00
Clinton Township, Dak., 7s	1,000.00	1,000.00	1,000.00
Adams Township, Dak., 7s.....	700.00	700.00	700.00
Grant Centre, Dak., 8s.....	200.00	200.00	200.00
Dolan Township, Dak., 7s.....	1,500.00	1,500.00	1,500.00
Sauk Centre, Minn., 7s.....	3,000.00	3,000.00	3,300.00
Lac-qui-parle County, Minn., 8s.....	400.00	400.00	400.00
	\$24,450.00	\$24,450.00	\$24,750.00
<i>MISCELLANEOUS.</i>			
Parsons Light & Heat Co., Kan., 7s.	\$10,000.00	\$10,000.00	\$10,000.00
Independence Water Co., Inde- pendence, Kan., 7s.....	10,000.00	10,000.00	10,000.00
Parsons Water Co., Kan., 6s.....	25,000.00	25,000.00	25,000.00
Lombard Investment Co. debent- ures, Kan., 6s.....	6,000.00	6,000.00	6,000.00
Burlington Steam Supply, Io., 7s....	17,500.00	17,500.00	17,500.00
Wichita-Schuyler Electric Light Co., Kan., 7s.....	5,000.00	5,000.00	5,000.00
Le Mars Gas-light Co., Io., 7s.....	5,250.00	5,000.00	5,000.00
Hastings Gas-light Co., Minn., 6s....	7,000.00	7,000.00	7,000.00
Sedalia Gas-light Co., Mo., 7s.....	7,500.00	7,500.00	7,500.00
Parsons Water Co., Kan., 8s.....	5,000.00	5,000.00	5,000.00
<i>Amount carried forward</i>	\$98,250.00	\$98,000.00	\$98,000.00

SCHEDULE OF BONDS AND STOCKS OF THE NASHUA SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
<i>MISCELLANEOUS. — Continued.</i>			
<i>Amount brought forward</i>	\$98,250.00	\$98,000.00	\$98,000.00
Knoxville Water-works, Tenn., 6s..	5,100.00	5,000.00	5,000.00
Winfield Water Co., Kan., 6s.....	10,000.00	10,000.00	10,000.00
Red Oak Gas-light Co., Io., 6s.	6,000.00	6,000.00	5,400.00
El Dorado Water Supply Co., Kan., 6s	10,000.00	10,000.00	9,700.00
The Springfield Water Co., Mo., 6s..	10,000.00	10,000.00	10,000.00
Clay Centre Water Co., Kan., 7s....	10,000.00	10,000.00	10,000.00
Sioux Falls Water Co., Dak., 6s.....	11,500.00	11,500.00	10,925.00
Northwestern Trust Co. debentures, Dak., 6s.....	5,000.00	5,000.00	5,000.00
Pullman Palace Car Co., Ill., 7s....	26,250.00	25,000.00	25,000.00
New Hampshire Trust Co. debentures, 6s	5,000.00	5,000.00	5,000.00
Muscatine Mortgage Co. debent., 6s	10,000.00	10,000.00	10,000.00
Leavenworth City & Fort Leavenworth Water Co., Kan., 6s.....	10,000.00	10,000.00	10,000.00
Wichita City Railway, 7s.....	10,500.00	10,000.00	10,000.00
New England Mort. Security Co., 6s	25,000.00	25,000.00	25,000.00
Mankato Gas Co., 7s.....	10,000.00	10,000.00	10,000.00
United Brass Co., 6s.....	5,000.00	5,000.00	5,000.00
Sioux City Gas-light Co., 7s.....	3,060.00	3,000.00	3,000.00
Winfield Gas Co., 7s.....	10,000.00	10,000.00	10,000.00
Belleville Water Co., 6s.....	5,000.00	5,000.00	5,000.00
Owego " N. Y., 6s.....	5,000.00	5,000.00	5,000.00
Fort Plain " N. Y., 6s.....	5,000.00	5,000.00	5,000.00
Moberly " Mo., 6s.....	10,000.00	10,000.00	9,600.00
Wellington " Kan., 6s.....	5,000.00	5,000.00	4,750.00
Omaha " Neb., 6s.....	15,000.00	15,000.00	15,000.00
Tiffin " O., 6s.....	10,000.00	10,000.00	10,000.00
Charleston " W. Va., 6s.....	10,000.00	10,000.00	10,000.00
	\$345,660.00	\$343,500.00	\$341,375.00
<i>STOCKS.</i>			
<i>BANK.</i>			
Central National, Topeka, Kan.....	\$2,750.00	\$2,500.00	\$2,500.00
Sioux National, Sioux City, Io.....	22,000.00	20,000.00	20,000.00
National Bank of Des Moines, Io...	10,000.00	10,000.00	10,000.00
Clark County, Osceola, Io.....	8,250.00	8,250.00	8,250.00
Richardson County, Falls City, Neb.	5,250.00	5,000.00	5,000.00
National Bank of Commerce, N. Y.	52,500.00	30,000.00	30,000.00
Fourth National, N. Y.....	43,500.00	30,000.00	30,000.00
Merchants' National, N. Y.....	27,600.00	20,000.00	20,000.00
National Bank of Republic, N. Y...	13,700.00	10,000.00	10,000.00
Bank of the State of New York, N. Y.	13,700.00	10,000.00	10,000.00
St. Nicholas, N. Y.....	12,500.00	10,000.00	10,000.00
American Exchange National, N. Y.	7,250.00	5,000.00	5,000.00
Pacific National, N. Y.....	7,600.00	5,000.00	5,000.00
Central National, N. Y.....	6,350.00	5,000.00	5,000.00
Bank of North America, N. Y.....	8,610.00	7,000.00	7,000.00
Metropolitan National, N. Y.....	341.00	1,100.00	1,100.00
Park National, N. Y.....	1,740.00	1,000.00	1,000.00
Merchants' Nat., Kansas City, Mo..	21,000.00	20,000.00	20,000.00
The National Bank of Kansas City..	20,800.00	16,000.00	16,000.00
Boston National, Boston	12,000.00	10,000.00	10,000.00
Eliot National, Boston.....	13,100.00	10,000.00	10,000.00
National Bank of North America, Boston.....	10,400.00	10,000.00	10,000.00
<i>Amount carried forward</i>	\$319,941.00	\$245,850.00	\$245,850.00

SCHEDULE OF BONDS AND STOCKS OF THE NASHUA SAVINGS
BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
<i>BANK. — Continued.</i>			
<i>Amount brought forward</i>	\$319,941.00	\$245,850.00	\$245,850.00
National Bank of Republic, Boston	10,500.00	7,500.00	7,500.00
Railroad National, Lowell.....	6,000.00	5,000.00	5,000.00
Indian Head National, Nashua.....	5,800.00	4,640.00	5,110.00
First National, Nashua.....	10,500.00	10,000.00	10,000.00
Second National, Nashua.....	7,700.00	7,000.00	7,190.00
First National, Winfield, Kan.....	11,000.00	10,000.00	10,000.00
Citizens', Wichita, Kan.....	10,000.00	10,000.00	10,000.00
	\$382,441.00	\$299,990.00	\$300,650.00
<i>RAILROAD.</i>			
Philadelphia, Wilmington & Baltimore.....	\$42,600.00	\$30,000.00	\$30,000.00
Chicago, Burlington & Quincy....	56,000.00	40,000.00	38,199.17
Chicago & Alton.....	42,900.00	30,000.00	30,000.00
Eel River.....	17,680.00	44,200.00	44,200.00
Vermont & Massachusetts	35,000.00	25,000.00	25,000.00
Union Pacific.....	12,300.00	20,000.00	21,275.00
Atchison, Topeka & Santa Fé.....	26,500.00	25,000.00	20,640.62
Detroit, Hillsdale & Southwestern.	7,500.00	10,000.00	10,000.00
Connecticut River.....	9,600.00	5,000.00	5,000.00
Chicago, St. Paul, Minneapolis & Omaha.....	5,600.00	5,000.00	5,137.50
Oregon Railway & Navigation Co..	5,100.00	5,000.00	3,912.50
Cincinnati, Lebanon & Northern...	16,000.00	40,000.00	40,000.00
Chicago, Burlington & Northern...	2,160.00	2,400.00	440.00
	\$278,940.00	\$281,600.00	\$273,804.79
<i>MISCELLANEOUS.</i>			
Pennichuck Water Co.....	\$122,100.00	\$66,000.00	\$66,000.00
Quincy Railroad Bridge Co.....	70,000.00	40,000.00	40,000.00
Davidson Investment Co.....	14,400.00	14,400.00	14,400.00
Muscatine Mortgage and Trust Co.	24,000.00	20,000.00	20,000.00
Anglo-American Land Mortgage and Agency Co.....	9,725.12	9,725.12	9,725.12
Muscatine Cattle Co.....	6,800.00	6,800.00	5,800.00
Minnesota Loan and Trust Co.....	6,000.00	5,000.00	5,000.00
New Hampshire Trust Co.....	5,250.00	5,000.00	5,000.00
Dakota Loan and Trust Co.....	10,000.00	10,000.00	10,000.00
Pullman Palace Car Co.....	7,600.00	5,000.00	5,000.00
Dakota Mortgage Loan Corporation	3,000.00	3,000.00	3,300.00
American Investment Co.....	2,500.00	2,500.00	2,500.00
Minnesota Title Ins. and Trust Co.	2,500.00	2,500.00	2,500.00
Topeka Loan and Investment Co.	1,500.00	1,500.00	1,000.00
International Trust Co.....	12,500.00	10,000.00	10,000.00
Winfield Mortgage and Trust Co...	5,000.00	5,000.00	5,000.00
Midland Investment Co.....	10,000.00	10,000.00	10,000.00
Citizens' Land Co.....	5,000.00	5,000.00	5,000.00
Kansas Investment Co.....	1,000.00	1,000.00	1,000.00
	\$318,875.12	\$222,425.12	\$221,225.12

NEW HAMPSHIRE BANKING COMPANY.—NASHUA.

SOLOMON SPALDING, *President.*W. A. FARLEY, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$743,791.01		\$743,791.01
Guaranty fund.....	100,000.00		100,000.00
Surplus.....	36,452.19		36,452.19
Credit balance.....	1,891.73		1,891.73
Premium on stocks and bonds.....	6,219.00		
	\$888,353.93		\$882,134.93

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$575,978.85	\$575,978.85	\$575,978.85
Loans secured by local real estate.....	76,371.50	76,371.50	76,371.50
Loans on personal security.....	15,043.68	15,043.68	15,043.68
Loans on collateral security.....	23,915.84	23,915.84	23,915.84
Loans on collateral security (Western).....	4,453.30	4,453.30	4,453.30
Loans on West'n chattel mortgages County, city, town, and district bonds.....	21,699.61	21,699.61	21,699.61
Railroad bonds.....	84,056.56	86,006.56	83,256.56
Railroad stock.....	9,109.00	8,100.00	8,100.00
Bank stock.....	2,390.00	4,700.00	1,920.00
Miscellaneous bonds.....	26,890.00	23,300.00	23,300.00
Miscellaneous stocks (New Hampshire Trust Co.).....	17,400.00	19,100.00	17,400.00
Balance on deposit in nat. banks...	7,350.00	7,000.00	7,000.00
Real estate acquired or held by foreclosure.....	18,905.72	18,905.72	18,905.72
Cash on hand.....	3,660.47	3,660.47	3,660.47
	1,129.40	1,129.40	1,129.40
	\$888,353.93	\$889,364.93	\$882,134.93

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	\$60,966.29
Deduct expenses for 1886	.	.	\$4,329.45	
Deduct state tax for 1886	.	.	7,416.07	
				11,745.52
Net profits to be accounted for	.	.	.	\$49,220.77

Dividend of 5 per cent, May 1, 1886	\$29,239.97
Special dividend to proprietors of guaranty fund	4,845.47
Balance of profits for 1886	15,135.33
Net profits (as above) accounted for	\$49,220.77
Guaranty fund Jan. 1, 1886 (paid in)	\$75,000.00
Other undivided profits Jan. 1, 1886	27,169.60
Total surplus profits Jan. 1, 1886	\$102,169.60
Guaranty fund Jan. 1, 1887 (paid in)	\$100,000.00
Other undivided profits Jan. 1, 1887	38,805.13
Total surplus profits Jan. 1, 1887	138,805.13
Increase for the year 1886	\$36,635.53
Surplus profits and guaranty fund — Jan. 1, 1883, \$7,213.93 ; Jan. 1, 1884, \$11,612.09 ; Jan. 1, 1885, \$13,854.94 ; Jan. 1, 1886, \$27,169.60 ; Jan. 1, 1887, \$38,805.13.	

Incorporated 1879. Charter perpetual.

Examination completed Dec. 7, 1886, by George E. Gage.

Trustees — Solomon Spalding, Edward Hardy, Albert A. Rotch, Charles H. Nutt, Archibald H. Dunlap, David O. Smith, George Phelps, Solon S. Whithed, Geo. A. Ramsdell.

Treasurer's bond \$60,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Nov. 9, 1886. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — Albert J. McKean.

Annual compensation of treasurer, \$1,200.

Annual compensation of clerk, \$600.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing ; as surety, \$125, by unanimous consent of trustees.

Loans and investments are made by S. Spalding, A. H. Dunlap, C. H. Nutt, G. A. Ramsdell, S. S. Whithed, Geo. Phelps.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in Boston.

Number of depositors, 1,416 ; increase since last examination by Bank Commissioners, 161.

Amount of deposits, \$743,791.01 ; increase since last examination, \$95,376.52.

Number of single loans of \$1,000 or less to separate parties in the State, 78.

Total amount of loans, \$719,983.34.

Total amount of stocks and bonds, \$138,456.

Largest amount loaned to any individual, corporation, or company, \$12,000.

Amount of assets with interest unpaid for over six months, \$11,286.75.
The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$147,411.49.

Total amount loaned or invested in New England, \$147,411.49.

Total amount loaned or invested out of New England, \$714,688.32.

Total amount loaned or invested drawing 3 per cent interest, \$1,700.

Total amount loaned or invested drawing 5 per cent interest, \$28,000.

Total amount loaned or invested drawing 6 per cent interest, \$152,031.02.

Total amount loaned or invested drawing 7 per cent interest, \$154,755.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$2,200.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$126,450.

Total amount loaned or invested drawing 8 per cent interest, \$265,460.50.

Total amount loaned or invested drawing 9 per cent interest, \$90,546.59.

Total amount loaned or invested drawing 10 per cent interest, \$22,863.85.

Amount invested from which no income has been received during the year, \$11,876.01.

Dividends for the year ending Dec. 31, 1886: May 1, 1886, 5 per cent, \$29,239.97.

No extra dividend declared.

Total expense of institution for the twelve months ending Dec. 7, 1886, \$4,155.09.

Nothing charged off as losses since last examination.

No other taxes.

Amount of deposits received since last examination, \$200,448.62.

Amount of dividends declared since last examination, \$29,239.97.

Amount paid on account of deposits since last examination, \$134,846.86.

SCHEDULE OF BONDS OF THE NEW HAMPSHIRE BANKING CO.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Peterborough, 6s.....	\$2,000.00	\$2,000.00	\$2,000.00
Nashua & Lowell, 6s.....	109.00	100.00	100.00
Minneapolis & St. Louis, 7s.....	6,000.00	5,000.00	5,000.00
Cincinnati, Lebanon & Northern, 5s	1,000.00	1,000.00	1,000.00
	\$9,109.00	\$8,100.00	\$8,100.00
COUNTY.			
Lake, Col., 8s.....	\$2,750.00	\$5,500.00	\$2,750.00
CITY.			
Red Oak Junction, Io., 5s.....	\$27,000.00	\$27,000.00	\$27,000.00
Fargo, Dak., 7s.....	5,200.00	5,000.00	5,000.00
Moorhead, Minn., 7s.....	5,450.00	5,000.00	5,000.00
Girard, Kan., 7s.....	3,150.00	3,000.00	3,000.00
St. Paul, Minn., 7s.....	1,000.00	1,000.00	1,000.00
New Philadelphia, O. (village), 6s..	6,000.00	6,000.00	6,000.00
	\$47,800.00	\$47,000.00	\$47,000.00
TOWNSHIP.			
Idaho Springs, Col., 8s.....	\$2,000.00	\$2,000.00	\$2,000.00
SCHOOL DISTRICT.			
Grand Island, Hall County, Neb., 6s	\$10,000.00	\$10,000.00	\$10,000.00
Hall County, No. 17, Neb., 7s.....	800.00	800.00	800.00
" " " 67, " 7s.....	500.00	500.00	500.00
" " " 36, " 7s.....	500.00	500.00	500.00
" " " 63, " 7s.....	560.00	560.00	560.00
" " " 69, " 7s.....	300.00	300.00	300.00
" " " 50, " 7s.....	350.00	350.00	350.00
Buffalo County, No. 39, Neb., 7s...	400.00	400.00	400.00
Dawson " " 38, " 7s.....	220.00	220.00	220.00
Howard " " 32, " 7s.....	350.00	350.00	350.00
Wilkin " " 12, Minn., 8s....	900.00	900.00	900.00
Sherburn " " 21, " 8s....	500.00	500.00	500.00
Big Stone " " 1, " 7s....	2,000.00	2,000.00	2,000.00
Otter Tail " " 124, " 10s....	375.00	375.00	375.00
Todd " " 66, " 10s....	581.00	581.00	581.00
Polk " " 13, " 7s....	6,000.00	6,000.00	6,000.00
Cass " " 17, Dak., 8s....	1,500.00	1,500.00	1,500.00
Moody & Lake Cos., No. 40, Dak., 10s	150.00	150.00	150.00
Chaffee County, No. 9, Col., 10s.....	3,000.00	3,000.00	3,000.00
Leadville warrants, No. 2, Col., 10s.	676.01	676.01	676.01
Cass Co. warrants, No. 18, Dak., 10s	500.00	500.00	500.00
" " " 41, " 10s	554.00	554.00	554.00
" " " 31, " 10s	500.00	500.00	500.00
" " " 18, " 10s	250.00	250.00	250.00
" " " 18, " 10s	40.55	40.55	40.55
	\$31,506.56	\$31,506.56	\$31,506.56
MISCELLANEOUS.			
Oregon Improvement Co., 6s.....	\$4,650.00	\$5,000.00	\$4,800.00
Des Moines Street Railway, 6s.....	3,150.00	3,000.00	3,000.00
Joliet Water-works.....	1,500.00	3,000.00	1,500.00
Joliet Water-works, 6s.....	2,100.00	2,100.00	2,100.00
New Hampshire Trust Co. deb., 6s..	6,000.00	6,000.00	6,000.00
	\$17,400.00	\$19,100.00	\$17,400.00

SCHEDULE OF STOCKS OF THE NEW HAMPSHIRE BANKING CO.

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
Second National, Nashua.....	\$13,750.00	\$12,500.00	\$12,500.00
Indian Head National, Nashua	6,250.00	4,000.00	4,000.00
First National, Nashua.....	1,890.00	1,800.00	1,800.00
American National, Kansas City...	5,000.00	5,000.00	5,000.00
	\$26,890.00	\$23,300.00	\$23,300.00
RAILROAD.			
Peterborough.....	\$1,190.00	\$1,700.00	\$1,020.00
Cincinnati, Lebanon & Northern...	1,200.00	3,000.00	900.00
	\$2,390.00	\$4,700.00	\$1,920.00

NEW HAMPSHIRE SAVINGS BANK. — CONCORD.

SAMUEL S. KIMBALL, *President*. WILLIAM P. FISKE, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$2,836,461.54		\$2,836,461.54
Guaranty fund.....	150,000.00		150,000.00
Surplus.	130,888.42		130,888.42
Premium on stocks and bonds.....	244,343.00		
	\$3,361,692.96		\$3,117,349.96

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$239,850.00	\$239,850.00	\$239,850.00
Loans secured by Western city mortgages.....	242,550.00	242,550.00	242,550.00
Loans secured by local real estate.....	159,660.00	159,660.00	159,660.00
Loans on personal security.....	93,680.00	93,680.00	93,680.00
Loans on collateral security.....	60,615.00	60,615.00	60,615.00
Loans on collateral security (Western).....	50,500.00	50,500.00	50,500.00
United States bonds.....	6,425.00	5,000.00	5,000.00
State bonds.....	35,170.00	31,000.00	31,000.00
County, city, town, and district bonds.....	552,677.00	514,597.00	514,597.00
Railroad bonds.....	1,254,142.50	1,117,500.00	1,117,500.00
Railroad stock.....	227,775.50	179,900.00	172,205.00
Bank stock.....	9,925.00	6,700.00	6,700.00
Manufacturing stock.....	51,780.00	53,800.00	50,800.00
Miscellaneous bonds.....	298,750.00	294,500.00	294,500.00
Balance on deposit in First National Bank, Boston.....	30,381.92	30,381.92	30,381.92
Real estate (bank building).....	28,884.22	28,884.22	28,884.22
Real estate acquired or held by foreclosure.....	2,300.00	2,300.00	2,300.00
Cash on hand.....	16,626.82	16,626.82	16,626.82
	\$3,361,692.96	\$3,128,044.96	\$3,117,349.96

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$183,228.77
Deduct expenses for 1886	\$6,348.53
Deduct state tax for 1886	25,827.14
Deduct amount invested in real estate	18,060.63
	<u>50,236.30</u>
Net profits to be accounted for	\$132,992.47

Dividend of 4 per cent, January, 1886 .	\$91,544.45	
Carried to guaranty fund . . .	10,000.00	
Balance of profits for 1886 . . .	31,448.02	
<hr/>		
Net profits (as above) accounted for . . .		\$132,992.47
Guaranty fund Jan. 1, 1886 . . .	\$130,000.00	
Other undivided profits Jan. 1, 1886 .	126,511.35	
Total surplus profits Jan. 1, 1886 .	<hr/>	\$256,511.35
Guaranty fund Jan. 1, 1887 . . .	\$140,000.00	
Other undivided profits Jan. 1, 1887 .	157,959.37	
Total surplus profits Jan. 1, 1887 .	<hr/>	297,959.37
<hr/>		
Increase for the year 1886		\$41,448.02

Surplus profits — Jan. 1, 1883, \$204,844.34 ; Jan. 1, 1884, \$226,270.44 ; Jan. 1, 1885, \$268,927.87 ; Jan. 1, 1886, \$256,511.35 ; Jan. 1, 1887, \$297,959.37.

Incorporated 1830. Charter perpetual.

Examination completed April 2, 1887, by George E. Gage and Charles E. Cooper.

Trustees — Samuel S. Kimball, Jesse P. Bancroft, Joseph B. Walker, Oliver Pillsbury, M. H. Bradley, P. B. Cogswell, William G. Carter, John C. Thorne, Samuel C. Eastman, Enoch Gerrish, Francis A. Fiske, John H. Stewart, Sylvester Dana, George H. Marston, Mark R. Holt, Charles T. Page, John H. George, Henry McFarland.

Treasurer's bond \$100,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, July 25, 1885. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerks — George C. Roy, William R. Walker.

Annual compensation of treasurer, \$2,000.

Annual compensation of clerks, \$720 and \$1,200.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$14,200 ; as surety, \$14,900, by unanimous consent of trustees.

Loans and investments are made by standing committee.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 6,948 ; increase since last examination by Bank Commissioners, 515.

Amount of deposits, \$2,836,461.54 ; increase since last examination, \$224,978.95.

Number of single loans of \$1,000 or less to separate parties in the State, 86.

Total amount of loans, \$846,855.

Total amount of stocks and bonds, \$2,192,302.

Largest amount loaned to any individual, corporation, or company, \$40,000.

Amount of assets with interest unpaid for over six months, \$13,625.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$499,439.22.

Total amount loaned or invested in New England, \$613,039.22.

Total amount loaned or invested out of New England, \$2,457,302.

Total amount loaned or invested drawing 4 per cent interest, \$70,000.

Total amount loaned or invested drawing 5 per cent interest, \$98,500.

Total amount loaned or invested drawing 6 per cent interest, \$1,358,352.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$10,000.

Total amount loaned or invested drawing 7 per cent interest, \$1,100,650.

Total amount loaned or invested drawing $7\frac{3}{16}$ per cent interest, \$20,000.

Total amount loaned or invested drawing 8 per cent interest, \$266,150.

Total amount loaned or invested drawing 10 per cent interest, \$7,000.

Dividends for the year ending Dec. 31, 1886: 4 per cent, January, 1886, \$91,544.45.

Total expense of institution for the twelve months ending April 2, 1887, \$5,124.72.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, \$260.32.

Amount of deposits received since last examination, \$618,045.64.

Amount of dividends declared since last examination, \$101,683.33.

Amount paid on account of deposits since last examination, \$494,750.02.

SCHEDULE OF BONDS AND STOCKS OF THE NEW HAMPSHIRE
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s.....	\$6,425.00	\$5,000.00	\$5,000.00
STATE.			
New Hampshire, 6s.....	\$13,970.00	\$11,000.00	\$11,000.00
Maine, 6s.....	21,200.00	20,000.00	20,000.00
	\$35,170.00	\$31,000.00	\$31,000.00
RAILROAD.			
Southern Pacific, 6s.....	\$45,400.00	\$40,000.00	\$40,000.00
Union Pacific (Col. Trust), 6s.....	20,140.00	19,000.00	19,000.00
Atlantic & Pacific, 4s.....	51,900.00	60,000.00	60,000.00
Nordaway Valley, 7s.....	17,440.00	16,000.00	16,000.00
Tarkio Valley, 7s.....	20,710.00	19,000.00	19,000.00
Central Iowa, 7s.....	22,875.00	25,000.00	25,000.00
Chicago & West Michigan, 5s.....	2,010.00	2,000.00	2,000.00
Chicago, Burlington & Quincy, 4s..	4,825.00	5,000.00	5,000.00
Northern Pacific, 6s.....	117,000.00	100,000.00	100,000.00
Florence, El Dorado & Walnut Valley, 7s.....	13,440.00	12,000.00	12,000.00
Wichita & Southwestern, 7s.....	17,700.00	15,000.00	15,000.00
Chicago, St. Paul, Minneapolis & Omaha, 6s.....	36,600.00	30,000.00	30,000.00
New York & New England, 7s.....	25,400.00	20,000.00	20,000.00
St. Paul & Northern Pacific, 6s.....	34,800.00	30,000.00	30,000.00
Chicago, Burlington & Northern, 5s	5,747.50	5,500.00	5,500.00
Atchison, Topeka & Santa Fé, 6s...	26,875.00	25,000.00	25,000.00
Chicago, Kansas & Western, 5s.....	30,000.00	30,000.00	30,000.00
Chicago, Santa Fé & California, 5s..	51,500.00	50,000.00	50,000.00
Dixon, Peoria & Hannibal, 8s.....	21,200.00	20,000.00	20,000.00
Old Colony (Reg.), 6s.....	17,925.00	15,000.00	15,000.00
Burlington & Missouri (land grant), 7s.....	58,000.00	50,000.00	50,000.00
Michigan Central, 8s.....	21,600.00	20,000.00	20,000.00
Illinois Grand Trunk, 8s.....	16,200.00	15,000.00	15,000.00
Jackson, Lansing & Saginaw, 8s ...	11,200.00	10,000.00	10,000.00
Ottawa, Oswego & Fox River Valley, 8s.....	6,400.00	5,000.00	5,000.00
Michigan Air Line, 8s.....	10,800.00	10,000.00	10,000.00
Ogdensburg & Lake Champlain, 6s.	21,000.00	20,000.00	20,000.00
Ogdensburg & Lake Champlain, 8s.	19,570.00	19,000.00	19,000.00
Chicago, Burlington & Quincy, 7s...	97,875.00	75,000.00	75,000.00
Boston & Lowell, 6s.....	5,800.00	5,000.00	5,000.00
Boston & Lowell, 7s.....	11,300.00	10,000.00	10,000.00
St. Joseph & Grand Island, 6s.....	26,750.00	25,000.00	25,000.00
Kalamazoo & South Haven, 8s.....	5,200.00	5,000.00	5,000.00
Concord & Claremont, 7s.....	11,200.00	10,000.00	10,000.00
Chicago, Milwaukee & St. Paul (Southwestern), 6s.....	35,700.00	30,000.00	30,000.00
Chicago, Milwaukee & St. Paul (H. & D.), 7s.....	49,800.00	40,000.00	40,000.00
Chicago, Milwaukee & St. Paul (Dakota Div.), 6s.....	59,500.00	50,000.00	50,000.00
Oregon Short Line, 6s.....	51,500.00	50,000.00	50,000.00
Burlington & Missouri (in Nebraska), 6s.....	46,440.00	43,000.00	43,000.00
Republican Valley (C. B. & Q.), 7s...	28,620.00	27,000.00	27,000.00
Wisconsin Valley, 7s.....	76,200.00	60,000.00	60,000.00
	\$1,254,142.50	\$1,117,500.00	\$1,117,500.00

SCHEDULE OF BONDS AND STOCKS OF THE NEW HAMPSHIRE
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
COUNTY.			
Garfield warrants, 10s.....	\$5,000.00	\$5,000.00	\$5,000.00
Bingham (Funding), Id., 8s.....	4,725.00	4,500.00	4,500.00
Bingham (Court-house and Jail), Id., 7s.....	5,665.00	5,500.00	5,500.00
St. Louis, Mo., 6s and 7s.....	9,880.00	9,600.00	9,000.00
Pueblo, Col., 7s.....	10,500.00	10,000.00	10,000.00
Arapahoe, Col., 6s.....	20,000.00	20,000.00	20,000.00
	\$55,770.00	\$54,000.00	\$54,000.00
CITY.			
Concord, N. H., 6s.....	\$72,800.00	\$65,000.00	\$65,000.00
Manchester, N. H., 6s.....	29,290.00	29,000.00	29,000.00
Nashua, N. H., 6s.....	10,100.00	10,000.00	10,000.00
Chicago, Ill., 7s.....	47,000.00	47,000.00	47,000.00
Cleveland, O., 7s.....	54,280.00	46,000.00	46,000.00
Cincinnati, O., 7s.....	23,500.00	20,000.00	20,000.00
Detroit, Mich., 7s.....	36,000.00	30,000.00	30,000.00
Newport, Ky., 7 3-10s.....	22,200.00	20,000.00	20,000.00
Toledo, O., 6s.....	7,350.00	7,000.00	7,000.00
Rock Island, Ill., 6s.....	10,500.00	10,000.00	10,000.00
Marietta, O., 8s.....	13,380.00	12,000.00	12,000.00
St. Louis, Mo., 6s.....	48,420.00	46,000.00	46,000.00
Jersey City, N. J., 7s.....	21,800.00	20,000.00	20,000.00
Bath, Me., 6s.....	1,000.00	1,000.00	1,000.00
Fort Collins, Col., 7s.....	5,250.00	5,000.00	5,000.00
Colorado Springs, Col., 7s.....	23,320.00	22,000.00	22,000.00
Canon, Col., 7s.....	5,000.00	5,000.00	5,000.00
	\$431,190.00	\$395,000.00	\$395,000.00
SCHOOL DISTRICT.			
Iowa School bonds, 6s.....	\$49,597.00	\$49,597.00	\$49,597.00
Pueblo County, 6s.....	5,000.00	5,000.00	5,000.00
Las Animas, Col., 7s.....	5,000.00	5,000.00	5,000.00
Fremont County, Col., 8s.....	6,120.00	6,000.00	6,000.00
	\$65,717.00	\$65,597.00	\$65,597.00
MISCELLANEOUS.			
Portland Water Co., 6s.....	\$10,300.00	\$10,000.00	\$10,000.00
Kingston " 6s.....	10,000.00	10,000.00	10,000.00
Salina " 6s.....	5,000.00	5,000.00	5,000.00
Parsons " 6s.....	10,000.00	10,000.00	10,000.00
Oshkosh " 6s.....	20,000.00	20,000.00	20,000.00
Oswego " N. Y., 7s.....	21,000.00	20,000.00	20,000.00
Topeka Water Supply, 6s.....	10,000.00	10,000.00	10,000.00
Eau Claire Water Co., Wis., 6s.....	20,000.00	20,000.00	20,000.00
Springfield Water Co., Mo., 6s.....	15,000.00	15,000.00	15,000.00
City Water Co., Belleville, 6s.....	10,000.00	10,000.00	10,000.00
Elkhart Water Co., Ind., 6s.....	10,000.00	10,000.00	10,000.00
East St. Louis Water Co., 6s.....	10,000.00	10,000.00	10,000.00
Marshalltown Gas Co., 7s.....	17,000.00	17,000.00	17,000.00
Streator Gas-light & Coke Co., 7s...	7,500.00	7,500.00	7,500.00
Minneapolis Gas-light Co., 6s.....	12,600.00	12,000.00	12,000.00
Municipal Gas-light Co., Rochester, N. Y., 6s.....	10,000.00	10,000.00	10,000.00
Iowa Loan and Trust Co., 6s.....	22,000.00	22,000.00	22,000.00
Kansas Investment Co., 6½s.....	10,000.00	10,000.00	10,000.00
Central Loan and Land Co., 6s..	5,000.00	5,000.00	5,000.00
<i>Amount carried forward.....</i>	\$235,400.00	\$233,500.00	\$233,500.00

SCHEDULE OF BONDS AND STOCKS OF THE NEW HAMPSHIRE
SAVINGS BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS. — <i>Continued.</i>			
<i>Amount brought forward</i>	\$235,400.00	\$233,500.00	\$233,500.00
New Hampshire Asylum, 5s.	11,000.00	11,000.00	11,000.00
Pullman Palace Car Co., 7s.	36,750.00	35,000.00	35,000.00
Pullman Palace Car Co., 8s.	5,600.00	5,000.00	5,000.00
C. N. Nelson Lumber Co., 6s.	10,000.00	10,000.00	10,000.00
	\$298,750.00	\$294,500.00	\$294,500.00
STOCKS.			
BANK.			
Merchants' National, Boston.....	\$2,800.00	\$2,000.00	\$2,000.00
State Capital, Concord.....	4,375.00	2,500.00	2,500.00
First National, Manchester.....	2,750.00	2,200.00	2,200.00
	\$9,925.00	\$6,700.00	\$6,700.00
RAILROAD.			
Northern	\$6,425.00	\$5,000.00	\$5,000.00
Old Colony.....	18,400.00	10,000.00	10,000.00
Michigan Central.....	18,600.00	20,000.00	20,000.00
Eastern (in New Hampshire).....	10,800.00	10,000.00	5,000.00
Pemigewasset Valley.....	2,100.00	2,000.00	2,000.00
Eastern, preferred (Massachusetts)	53,019.00	38,700.00	38,700.00
Chicago, Burlington & Quincy....	78,820.00	56,300.00	56,300.00
Chicago, Burlington & Northern....	2,970.00	3,300.00	605.00
Atchison, Topeka & Santa Fé.....	31,800.00	30,000.00	30,000.00
Boston, Concord & Montreal, preferred.....	4,841.50	4,600.00	4,600.00
	\$227,775.50	\$179,900.00	\$172,205.00
MANUFACTURING STOCKS.			
Amoskeag.....	\$4,600.00	\$2,000.00	\$2,000.00
Amory.....	660.00	600.00	600.00
Contoocook Manufacturing and Mechanics' Co.....	3,000.00	10,000.00	7,000.00
Contoocook Manufacturing and Mechanics' Co., preferred.....	3,000.00	3,000.00	3,000.00
Osborne Mills, Fall River.....	7,200.00	7,200.00	7,200.00
Border City, Fall River.....	13,920.00	11,600.00	11,600.00
Sagamore, Fall River.....	9,100.00	9,100.00	9,100.00
C. N. Nelson Lumber Co., Minn.....	10,300.00	10,300.00	10,300.00
	\$51,780.00	\$53,800.00	\$50,800.00

NEW IPSWICH SAVINGS BANK. — NEW IPSWICH.

GEORGE WHITING, *President*.FRED. W. PRESTON, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$71,669.45		\$71,669.45
Guaranty fund.....	3,000.00		3,000.00
Surplus.....	7,639.99		7,639.99
Premium on stocks and bonds.....	1,580.00		
	\$83,889.44		\$82,309.44

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages....	\$12,800.00	\$12,800.00	\$12,800.00
Loans secured by local real estate.	36,012.01	36,012.01	36,012.01
Loans on personal security.....	963.00	963.00	963.00
Railroad bonds.	10,580.00	9,000.00	9,000.00
Miscellaneous bonds	5,000.00	5,000.00	5,000.00
Balance on deposit in Townshend National Bank.....	6,000.93	6,000.93	6,000.93
Real estate purchased for the bank	1,000.00	1,000.00	1,000.00
Real estate acquired or held by foreclosure.....	10,776.00	10,776.00	10,776.00
Cash on hand.	757.50	757.50	757.50
	\$83,889.44	\$82,309.44	\$82,309.44

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	\$5,334.50
Deduct expenses for 1886	.	.	\$603.74	
Deduct state tax for 1886	.	.	617.25	
				1,220.99
Net profits to be accounted for	.	.	.	\$4,113.51
Dividend of 4 per cent, January, 1886	.	\$2,772.51		
Carried to guaranty fund	.	400.00		
Balance of profits for 1886	.	941.00		
Net profits (as above) accounted for	.			\$4,113.51
Guaranty fund Jan. 1, 1886	.	\$3,000.00		
Other undivided profits Jan. 1, 1886	.	5,605.31		
Total surplus profits Jan. 1, 1886	.			\$8,605.31

Guaranty fund Jan. 1, 1887	\$3,400.00
Other undivided profits Jan. 1, 1887	6,993.31
Total surplus profits Jan. 1, 1887	<u>\$10,393.31</u>

Increase for the year 1886 \$1,788.00

Surplus profits — Jan. 1, 1883, \$7,912.91 ; Jan. 1, 1884, \$8,035 ; Jan. 1, 1885, \$8,281 ; Jan. 1, 1886, \$8,605.31 ; Jan. 1, 1887, \$10,393.31.

Incorporated 1849. Charter perpetual.

Examination completed Jan. 7, 1887, by Chas. E. Cooper.

Vice-President — None.

Trustees — Wm. W. Johnson, Wm. A. Preston, Geo. Whiting, Ephraim F. Fox, Geo. W. Wheeler, 2d, Frederick Jones, Frank W. Preston, Henry O. Preston, Edward O. Marshall.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, April 19, 1875. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$23; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by president, H. O. Preston, F. Jones, and E. O. Marshall.

Reports are made as required by law.

This bank receives 3 per cent interest on its deposits in other banks.

Number of depositors, 216 ; same as last year.

Amount of deposits, \$71,669.45 ; decrease since last examination, \$379.95.

Amount of bank's assets in Boston for safe-keeping, \$9,000.

Number of single loans of \$1,000 or less to separate parties in the State, 57.

Total amount of loans, \$49,775.01.

Total amount of stocks and bonds, \$14,000.

Largest amount loaned to any individual, corporation, or company, \$5,667.91.

Amount of assets with interest unpaid for over six months, \$7,642.91.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$53,751.01.

Total amount loaned or invested in New England, \$53,751.01.

Total amount loaned or invested out of New England, \$21,800.

Total amount loaned or invested drawing 4 per cent interest, \$8,162.

Total amount loaned or invested drawing 6 per cent interest,
\$53,216.01.

Total amount loaned or invested drawing 7 per cent interest,
\$4,000.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest,
\$6,559.

Amount invested from which no income has been received during
the year, \$7,642.91.

Dividends for the year ending Dec. 31, 1886: January, 1886, 4 per
cent, \$2,772.51.

No extra dividend declared in 1886.

Total expense of institution for the twelve months ending Jan. 7,
1887, \$335.20.

Nothing charged off as losses since last examination.

Amount of other taxes, \$77.74.

Amount of deposits received since last examination, \$7,447.35.

Amount of dividends declared since last examination, \$2,762.89.

Amount paid on account of deposits since last examination,
\$10,590.19.

SCHEDULE OF BONDS OF THE NEW IPSWICH SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago, Milwaukee & St. Paul, 6s..	\$4,720.00	\$4,000.00	\$4,000.00
Sonora, 7s	1,030.00	1,000.00	1,000.00
Kansas City, Emporia & South'n, 7s	2,400.00	2,000.00	2,000.00
New York & New England, 7s.....	1,270.00	1,000.00	1,000.00
New York & New England, 6s.....	1,160.00	1,000.00	1,000.00
	\$10,580.00	\$9,000.00	\$9,000.00
MISCELLANEOUS.			
New Hampshire Trust Co. deb., 6s..	\$5,000.00	\$5,000.00	\$5,000.00

NEWMARKET SAVINGS BANK.—NEWMARKET.

TIMOTHY M. JOY, *President*.SAMUEL A. HALEY, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$172,772.55		\$172,772.55
Guaranty fund.....	992.46		992.46
Surplus.....	1,000.00		1,000.00
Premium on stocks and bonds.....	1,520.00		
	\$176,285.01		\$174,765.01

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$15,925.00	\$15,925.00	\$15,925.00
Loans secured by Western city mortgages.....	27,703.25	27,703.25	27,703.25
Loans secured by local real estate.	48,980.17	48,980.17	48,980.17
Loans on personal security.....	11,921.92	11,921.92	11,921.92
Bank stock.....	16,720.00	15,200.00	15,200.00
Manufacturing stock.....	1,000.00	1,000.00	1,000.00
Miscellaneous bonds.....	5,200.00	5,200.00	5,200.00
Miscellaneous stocks.....	1,500.00	1,500.00	1,500.00
Balance on deposit in Newmarket National Bank.....	3,294.24	3,294.24	3,294.24
Personal property (at Lawrence) ..	4,463.08	4,463.08	4,463.08
Real estate acquired or held by foreclosure.....	39,577.35	39,577.35	39,577.35
	\$176,285.01	\$174,765.01	\$174,765.01

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$9,467.21
Deduct expenses for 1886	\$656.97
Deduct state tax for 1886	1,276.10
Deduct shrinkage in real estate	594.62
Deduct items charged off	285.03
	<hr/> 2,812.72
Net profits to be accounted for	\$6,654.49
Dividend of 2 per cent, January, 1886	\$3,145.08
Dividend of 2 per cent, July, 1886	3,339.42
Balance of profits for 1886	169.99
Net profits (as above) accounted for	<hr/> \$6,654.49

Guaranty fund Jan. 1, 1886	\$1,000.00	
Other undivided profits Jan. 1, 1886	159.64	
Total surplus profits Jan. 1, 1886	<u> </u>	\$1,159.64
Guaranty fund Jan. 1, 1887	\$1,000.00	
Other undivided profits Jan. 1, 1887	329.63	
Total surplus profits Jan. 1, 1887	<u> </u>	1,329.63
Increase for the year 1886		<u> </u> \$169.99

Surplus profits — Jan. 1, 1883, \$372.50; Jan. 1, 1884, \$756.26; Jan. 1, 1885, \$1,086.13; Jan. 1, 1886, \$1,159.64; Jan. 1, 1887, \$1,329.63.

Incorporated 1832. Charter perpetual.

Examination completed Oct. 5, 1886, by George E. Gage.

Trustees — T. M. Joy, B. F. Haley, J. F. Chapman, N. P. Treadwell, A. L. Mellons, B. Mathes, Jr., A. D. Wiggin, A. J. Nichols, S. A. Haley.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 6, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — A. C. Haines.

Annual compensation of treasurer, \$400.

Annual compensation of clerk, \$250.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$3,000, by unanimous consent of trustees.

Loans and investments are made by treasurer.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 616; increase since last examination by Bank Commissioners, 30.

Amount of deposits, \$172,772.55; increase since last examination, \$9,114.96.

Number of single loans of \$1,000 or less to separate parties in the State, 93.

Total amount of loans, \$104,530.34.

Total amount of stocks and bonds, \$22,900.

Largest amount loaned to any individual, corporation, or company, \$16,200.

Amount of assets with interest unpaid for over six months, \$10,629.28.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$121,142.52.

Total amount loaned or invested in New England, \$121,142.52.

Total amount loaned or invested out of New England, \$50,328.25.
 Total amount loaned or invested drawing 6 per cent interest,
 \$114,134.59.
 Total amount loaned or invested drawing 6½ per cent interest,
 \$5,200.
 Total amount loaned or invested drawing 7 per cent interest,
 \$5,550.
 Total amount loaned or invested drawing 10 per cent interest,
 \$1,500.
 Dividends for the year ending Dec. 31, 1886: 2 per cent, January,
 1886, \$3,145.08; 2 per cent, July, 1886, \$3,339.42.
 Total expense of institution for the twelve months ending Oct. 5,
 1886, \$650.
 Amount charged off as losses since last examination, nothing.
 Amount of other taxes, \$154.16.
 Amount of deposits received since last examination, \$36,086.73.
 Amount of dividends declared since last examination, \$6,227.61.
 Amount paid on account of deposits since last examination,
 \$33,199.38.

SCHEDULE OF STOCKS AND BONDS OF THE NEWMARKET SAVINGS
 BANK.

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
Newmarket National.....	\$16,720.00	\$15,200.00	\$15,200.00
MANUFACTURING.			
Newmarket Manufacturing Co.....	\$1,000.00	\$1,000.00	\$1,000.00
MISCELLANEOUS.			
Orange Land Co., Orlando, Fla.....	\$1,500.00	\$1,500.00	\$1,500.00
BONDS.			
Kansas Investment Co. debent., 6½s.	\$5,200.00	\$5,200.00	\$5,200.00

NEWPORT SAVINGS BANK. — NEWPORT.

HENRY G. CARLETON, *President.*F. W. LEWIS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$459,315.74		\$459,315.74
Guaranty fund.....	25,000.00		25,000.00
Surplus.....	4,910.22		4,910.22
Premium on stocks and bonds	21,853.67		
	<u>\$511,079.63</u>		<u>\$489,225.96</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$130,457.10	\$130,457.10	\$130,457.10
Loans secured by local real estate.....	107,730.63	107,730.63	107,730.63
Loans on personal security.....	21,934.50	21,934.50	21,934.50
Loans on collateral security.....	10,050.00	10,050.00	10,050.00
Loans on collateral security (Western)	29,000.00	29,000.00	29,000.00
State bonds.....	222.00	200.00	200.00
County, city, town, and district bonds.....	49,200.00	46,600.00	46,600.00
Railroad bonds.....	31,630.00	29,000.00	28,600.00
Railroad stock.....	65,886.50	51,300.00	50,603.00
Bank stock.....	24,177.50	19,000.00	22,509.33
Miscellaneous bonds.....	11,750.00	12,500.00	12,500.00
Balance on deposit in First National Bank, Newport.....	24,802.98	24,802.98	24,802.98
In hands of investing agents.....	3,303.42	3,303.42	3,303.42
Real estate acquired or held by foreclosure.....	935.00	935.00	935.00
	<u>\$511,079.63</u>	<u>\$486,813.63</u>	<u>\$489,225.96</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$29,572.92
Deduct expenses for 1886	\$2,138.19
Deduct state tax for 1886	4,221.90
	<u>6,360.09</u>
Net profits to be accounted for	\$23,212.83
Dividend of 2½ per cent, April, 1886	\$10,332.02
Dividend of 2½ per cent, October, 1886	10,564.79
Carried to guaranty fund	1,000.00
Balance of profits for 1886	1,316.02
Net profits (as above) accounted for	<u>\$23,212.83</u>

Guaranty fund Jan. 1, 1886	\$22,000.00	
Other undivided profits Jan. 1, 1886	5,345.29	
Total surplus profits Jan. 1, 1886	—————	\$27,345.29
Guaranty fund Jan. 1, 1887	\$23,000.00	
Other undivided profits Jan. 1, 1887	6,662.29	
Total surplus profits Jan. 1, 1887	—————	29,662.29

Increase for the year 1886 \$2,317.00

Surplus profits — Jan. 1, 1883, \$3,690.65; Jan. 1, 1884, \$17,977.71; Jan. 1, 1885, \$21,400.47; Jan. 1, 1886, \$27,345.59; Jan. 1, 1887, \$29,662.29.

Incorporated 1868. Charter perpetual.

Examination completed April 12, 1887, by Chas. E. Cooper.

Vice-President — Isaac A. Reed.

Trustees — Fred. W. Lewis, Henry G. Carleton, Isaac A. Reed, Dexter Richards, John Towne, Edmund Wheeler, Lyman Rounsevel, Dana J. Mooney, E. C. Converse, John P. Knowlton, A. S. Waite, Daniel P. Quimby, Robt. C. Osgood, Francis Boardman.

Treasurer's bond \$65,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, April 4, 1883. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — Geo. E. Lewis.

Annual compensation of treasurer, \$1,600.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing; as surety, \$4,535.50, by unanimous consent of trustees.

Loans and investments are made by loaning committee; meet when called.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,666; increase since last examination by Bank Commissioners, 68.

Amount of deposits, \$459,315.74; increase since last examination, \$29,675.89.

Number of single loans of \$1,000 or less to separate parties in the State, 120.

Total amount of loans, \$299,172.23.

Total amount of stocks and bonds, \$161,012.33.

Largest amount loaned to any individual, corporation, or company, \$25,000.

Amount of assets with interest unpaid for over six months, \$25,094.68.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$182,963.46.
Total amount loaned or invested in New England, \$219,581.46.
Total amount loaned or invested out of New England, \$241,538.10.
Total amount loaned or invested drawing 2 per cent interest,
\$6,200.
Total amount loaned or invested drawing 5 per cent interest,
\$7,900.
Total amount loaned or invested drawing 6 per cent interest,
\$241,515.13.
Total amount loaned or invested drawing 6½ per cent interest,
\$2,700.
Total amount loaned or invested drawing 7 per cent interest,
\$147,432.10.
Total amount loaned or invested drawing 7½ per cent interest,
\$850.
Total amount loaned or invested drawing 8 per cent interest,
\$24,450.
Total amount loaned or invested drawing 9 per cent interest,
\$10,300.
Amount invested from which no income has been received during
the year, \$5,500.
Dividends for the year ending Dec. 31, 1886: April, 1886, 2½
per cent, \$10,332.02; October, 1886, 2½ per cent, \$10,564.79.
Total expense of institution for the twelve months ending April 12,
1887, \$2,075.16.
Nothing charged off as losses since last examination.
Amount of other taxes, \$1.82.
Amount of deposits received since last examination, \$62,100.04.
Amount of dividends declared since last examination, \$20,245.81.
Amount paid on account of deposits since last examination,
\$52,669.96.

SCHEDULE OF BONDS AND STOCKS OF THE NEWPORT SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
STATE.			
New Hampshire, 6s.....	\$222.00	\$200.00	\$200.00
RAILROAD.			
Burlington, Cedar Rapids & North- ern, 5s.....	\$4,200.00	\$4,000.00	\$3,600.00
Boston, Concord & Montreal, 6s....	22,890.00	21,000.00	21,000.00
Boston, Concord & Montreal, 7s....	4,540.00	4,000.00	4,000.00
	\$31,630.00	\$29,000.00	\$28,600.00
CITY.			
Chicago, Ill., 7s.....	\$6,900.00	\$6,000.00	\$6,000.00
Lincoln, Neb., 6s.....	10,000.00	10,000.00	10,000.00
	\$16,900.00	\$16,000.00	\$16,000.00
TOWNSHIP.			
Newport, N. H., 6s.....	\$26,500.00	\$25,000.00	\$25,000.00
Newport, N. H., 5s.....	1,600.00	1,600.00	1,600.00
	\$28,100.00	\$26,600.00	\$26,600.00
COUNTY.			
Pueblo, Col., 7s.....	\$4,200.00	\$4,000.00	\$4,000.00
MISCELLANEOUS.			
New England Loan and Trust Co. debentures, 7s.....	\$5,000.00	\$5,000.00	\$5,000.00
Manhattan Beach Improve't Co., 7s	6,750.00	7,500.00	7,500.00
	\$11,750.00	\$12,500.00	\$12,500.00
STOCKS.			
BANK.			
First National, Newport.....	\$14,000.00	\$10,000.00	\$12,863.33
National Hide and Leather, Boston	2,587.50	2,300.00	2,300.00
Otoe County Nat., Neb. City, Neb..	2,750.00	2,500.00	2,750.00
Capital National, Lincoln, Neb.....	2,640.00	2,200.00	2,596.00
First National, Red Cloud, Neb.....	2,200.00	2,000.00	2,000.00
	\$24,177.50	\$19,000.00	\$22,509.33
RAILROAD.			
Pittsburg, Fort Wayne & Chicago..	\$14,600.00	\$10,000.00	\$7,673.25
Chicago & Alton.....	17,303.00	12,100.00	13,800.00
Philadelphia & Reading.....	1,155.00	5,500.00	5,425.25
Norwich & Worcester.....	7,240.00	4,000.00	4,318.00
Northern (N. H.).....	3,212.50	2,500.00	2,650.00
Michigan Central.....	5,766.00	6,200.00	6,621.50
Cleveland & Pittsburg.....	16,610.00	11,000.00	10,115.00
	\$65,886.50	\$51,300.00	\$50,603.00

NORWAY PLAINS SAVINGS BANK. — ROCHESTER.

JOHN McDUFFEE, *President.*H. M. PLUMER, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$604,450.60		\$604,450.60
Guaranty fund.....	2,183.64		2,183.60
Surplus	11,811.28		11,811.28
Premium on stocks and bonds.....	4,111.86		
	\$622,557.38		\$618,445.48

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western city mortgages.....	\$37,700.00	\$37,700.00	\$37,700.00
Loans secured by local real estate.....	44,700.00	44,700.00	44,700.00
Loans on personal security.....	106,865.28	106,865.28	106,865.28
Loans on collateral security.....	47,100.02	47,100.02	47,100.02
County, city, town, and district bonds.....	128,135.00	117,500.00	119,600.00
Railroad bonds.....	148,825.00	130,000.00	137,712.50
Bank stock.....	10,558.00	8,400.00	8,400.00
Miscellaneous bonds.....	48,960.00	48,000.00	48,940.00
Balance on deposit in Rochester National Bank.....	15,578.34	15,578.34	15,578.34
Real estate purchased for the bank	5,635.74	5,635.74	5,635.74
Real estate acquired or held by foreclosure.....	28,500.00	46,213.64	46,213.64
	\$622,557.38	\$607,703.02	\$618,445.52

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$36,454.42
Deduct expenses for 1886	\$2,434.09
Deduct state tax for 1886	5,003.55
	<u>7,437.64</u>
Net profits to be accounted for	\$29,016.78
Dividend of 2 per cent, May, 1886	\$11,417.69
Dividend of 2 per cent, November, 1886	11,542.47
Balance of profits for 1886	6,046.62
Net profits (as above) accounted for	<u>\$29,016.78</u>

Guaranty fund Jan. 1, 1886	\$15,000.00
Undivided profits Jan. 1, 1886, overdrawn	1,950.09
Total surplus profits Jan. 1, 1886	\$13,049.91
Charged to guaranty fund on account of real estate	\$12,816.36
Guaranty fund Jan. 1, 1887	\$2,183.64
Other undivided profits Jan. 1, 1887	4,096.53
Total surplus profits Jan. 1, 1887	\$6,280.17
Decrease for the year 1886	\$6,769.74

Surplus profits — Jan. 1, 1883, \$13,286.51; Jan. 1, 1884, \$15,465.18; Jan. 1, 1885, \$20,019.09; Jan. 1, 1886, \$13,049.91; Jan. 1, 1887, \$6,280.17.

Incorporated 1851. Charter perpetual.

Examination completed March 17, 1887, by C. E. Cooper and George E. Gage.

Trustees — John McDuffee, Charles Greenfield, I. W. Lougee, James Farrington, J. H. Edgerly, D. Hanson, N. Burnham.

Treasurer's bond \$50,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Dec 3, 1880. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — Sadie M. Guppy.

Annual compensation of treasurer, \$1,250.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$1,700; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,680; increase since last examination by Bank Commissioners, 90.

Amount of deposits, \$604,450.64; increase since last examination, \$22,229.30.

Number of single loans of \$1,000 or less to separate parties in the State, 43.

Total amount of loans, \$236,365.30.

Total amount of stocks and bonds, \$314,652.50.

Largest amount loaned to any individual, corporation, or company, \$20,000.

Amount of assets with interest unpaid for over six months, \$9,674.49.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$144,396.26.

Total amount loaned or invested in New England, \$349,155.52.

Total amount loaned or invested out of New England, \$269,290.

Total amount loaned or invested drawing $2\frac{1}{2}$ per cent interest, \$46,213.64.

Total amount loaned or invested drawing 5 per cent interest, \$92,100.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$15,282.48.

Total amount loaned or invested drawing 6 per cent interest, \$358,135.32.

Total amount loaned or invested drawing 7 per cent interest, \$77,100.

Total amount loaned or invested drawing 8 per cent interest, \$6,400.

Total amount loaned or invested drawing 10 per cent interest, \$2,000.

Amount invested from which no income has been received during the year, \$5,635.74.

Dividends for the year ending Dec. 31, 1886: May 1, 1886, 2 per cent, \$11,417.69; Nov. 1, 1886, 2 per cent, \$11,542.47.

Total expense of institution for the twelve months ending March 17, 1887, \$1,677.35.

Amount of other taxes, \$448.10.

Amount charged off as losses since last examination, \$17,971.18.

SCHEDULE OF BONDS AND STOCKS OF THE NORWAY PLAINS
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago, Milwaukee & St. Paul, 6s.	\$17,700.00	\$15,000.00	\$16,612.50
Oregon Short Line, 6s..	10,300.00	10,000.00	10,325.00
New York & New England, 6s.....	17,550.00	15,000.00	16,062.50
New York & New England, 7s.....	31,750.00	25,000.00	28,600.00
Chicago & Great Western, 5s.....	10,250.00	10,000.00	10,000.00
Northern Pacific (land grant), 6s....	26,875.00	25,000.00	25,637.50
Boston & Maine, 7s.....	23,800.00	20,000.00	20,000.00
Spokane & Palouse, 6s.....	10,600.00	10,000.00	10,475.00
	\$148,825.00	\$130,000.00	\$137,712.50
COUNTY.			
St. Louis, Mo., 6s.....	\$24,750.00	\$20,000.00	\$20,000.00
Cook, Ill., 7s.....	16,650.00	15,000.00	15,000.00
	\$41,400.00	\$35,000.00	\$35,000.00
CITY.			
St. Paul, Minn., 5s.....	\$27,625.00	\$25,000.00	\$25,937.50
St. Paul, Minn., 5s.....	16,575.00	15,000.00	16,162.50
Des Moines, Io., 5s.....	20,000.00	20,000.00	20,000.00
Omaha, Neb., 6s..	19,000.00	19,000.00	19,000.00
Chicago, Ill., 7s.	3,535.00	3,500.00	3,500.00
	\$86,735.00	\$82,500.00	\$84,600.00
MISCELLANEOUS.			
New Hampshire Trust Co. deb., 6s.	\$10,000.00	\$10,000.00	\$10,000.00
The Racine Water Co., Wis., 6s....	10,000.00	10,000.00	10,000.00
The Reynolds Land and Cattle Co., Tex., 7s.....	10,000.00	10,000.00	10,000.00
St. Louis Cable and Western Rail- way, Mo., 6s.....	8,960.00	8,000.00	8,940.00
Plattsmouth Water Co., Wis., 6s....	10,000.00	10,000.00	10,000.00
	\$48,960.00	\$48,000.00	\$48,940.00
STOCKS.			
BANK.			
Rochester National, N. H.....	\$6,608.00	\$5,900.00	\$5,900.00
Great Falls National, N. H.....	750.00	500.00	500.00
Strafford National, Dover, N. H....	3,200.00	2,000.00	2,000.00
	\$10,558.00	\$8,400.00	\$8,400.00

OSSIPEE VALLEY TEN-CENT SAVINGS BANK.— FREEDOM.

E. I. TOWLE, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$134,795.71		\$134,795.71
Guaranty fund.....	5,000.00		5,000.00
Surplus.....	3,155.81		3,155.81
Premium on stocks and bonds.....	65.00		
	<u>\$143,016.52</u>		<u>\$142,951.52</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$4,200.00	\$4,200.00	\$4,200.00
Loans secured by local real estate..	49,041.74	49,041.74	49,041.74
Loans on personal security.....	79,188.74	79,188.74	79,188.74
Loans on collateral security.....	6,693.94	6,693.94	6,693.94
Bank stock (Lake Nat., Wolfeboro')	1,365.00	1,300.00	1,300.00
Balance on deposit in Third Ward National Bank, Boston.. ..	1,002.82	1,002.82	1,002.82
Bank fixtures	400.00	400.00	400.00
Cash on hand.....	1,124.28	1,124.28	1,124.28
	<u>\$143,016.52</u>	<u>\$142,951.52</u>	<u>\$142,951.52</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$6,378.53
Deduct expenses for 1886	\$508.52
Deduct state tax for 1886	1,288.78
	<u>1,797.30</u>
Net profits to be accounted for	\$4,581.23
Dividend of 2 per cent, April, 1886 . .	\$2,521.58
Dividend of 2 per cent, October, 1886 . .	2,568.27
	<u>\$5,089.85</u>
From surplus account	508.62
Net profits (as above) accounted for . .	<u>\$4,581.23</u>

Guaranty fund Jan. 1, 1886 . . .	\$5,000.00	
Other undivided profits Jan. 1, 1886 . .	3,696.01	
Total surplus profits Jan. 1, 1886 . .	<u> </u>	\$8,696.01
Guaranty fund Jan. 1, 1887 . . .	\$5,000.00	
Other undivided profits Jan. 1, 1887 . .	3,187.39	
Total surplus profits Jan. 1, 1887 . .	<u> </u>	8,187.39

Decrease for the year 1886 \$508.62

Surplus profits — Jan. 1, 1885, \$8,066.92; Jan. 1, 1886, \$8,696.01; Jan. 1, 1887, \$8,187.39.

Incorporated 1868. Charter perpetual.

Examination completed May 5, 1887, by Chas. E. Cooper.

Vice-President — Rensselaer Towle.

Trustees — Elias I. Towle, Jacob Manson, John Parsons, Stephen J. Keneson, Geo. I. Philbrick, A. D. Merrow, Edwin Towle, David Smith, Orren E. Drake.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Dec. 29, 1881. Sureties of bond are able to respond. Bond deposited with vice-president for safe-keeping.

Clerk — Geo. I. Philbrick.

Annual compensation of treasurer, \$400.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$9,394.25; as surety, \$12,000.14, by unanimous consent of trustees.

Loans and investments are made by treasurer with consent of trustees.

Reports are not made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 491; increase since last examination by Bank Commissioners, 11.

Amount of deposits, \$134,795.71; increase since last examination, \$7,345.04.

Number of single loans of \$1,000 or less to separate parties in the State, 576.

Total amount of loans, \$139,124.42.

Total amount of stocks and bonds, \$1,300.

Largest amount loaned to any individual, corporation, or company, \$8,715.34.

Amount of assets with interest unpaid for over six months, \$14,904.24.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$136,224.42.

Total amount loaned or invested in New England, \$136,224.42.

Total amount loaned or invested out of New England, \$4,200.

Total amount loaned or invested drawing 6 per cent interest, \$136,224.42.

Total amount loaned or invested drawing 7 per cent interest, \$4,200.

Amount invested from which no income has been received during the year, \$14,904.42.

Dividends for the year ending Dec. 31, 1886: April, 1886, 2 per cent, \$2,521.58; October, 1886, 2 per cent, \$2,568.27.

No extra dividend declared in 1886.

Total expense of institution for the twelve months ending May 5, 1887, \$549.13.

Amount charged off as losses since last examination, \$300.

No other taxes.

Amount of deposits received since last examination, \$22,516.91.

Amount of dividends declared since last examination, \$5,089.85.

Amount paid on account of deposits since last examination, \$19,992.72.

PEOPLE'S SAVINGS BANK. — MANCHESTER.

PERSON C. CHENEY, *President.*G. B. CHANDLER, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$689,364.09		\$689,364.09
Guaranty fund	100,000.00		100,000.00
Surplus	57,256.09		57,256.09
Premium on stocks and bonds.....	8,305.00		
	\$854,925.18		\$846,620.18

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$728,178.25	\$728,178.25	\$728,178.25
Loans on personal security.....	15,925.00	15,925.00	15,925.00
Loans on personal security (West- ern)	30,139.02	30,139.02	30,139.02
Loans on collateral security.....	12,150.00	12,150.00	12,150.00
United States bonds.....	25,900.00	20,000.00	20,000.00
Railroad bonds.....	13,405.00	11,000.00	11,000.00
Miscellaneous bonds.....	5,000.00	5,000.00	5,000.00
Balance on deposit in Amoskeag National Bank.....	7,658.47	7,658.47	7,658.47
In hands of investing agents.....	15,083.35	15,083.35	15,083.35
Real estate acquired or held by fore- closure.....	1,000.00	1,000.00	1,000.00
Cash on hand.....	486.09	486.09	486.09
	\$854,925.18	\$846,620.18	\$846,620.18

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$50,437.75
Deduct expenses for 1886	\$1,880.09
Deduct state tax for 1886	7,352.88
	<u>9,232.97</u>

Net profits to be accounted for	\$41,204.78
Dividend of 5 per cent, April 1, 1886 . .	\$29,522.54
Dividend of 8 per cent (guaranty fund), January and July, 1886	8,000.00
Balance of profits for 1886	3,682.24
Net profits (as above) accounted for . .	<u>\$41,204.78</u>

Guaranty fund Jan. 1, 1886 . . .	\$100,000.00
Other undivided profits Jan. 1, 1886 . .	42,231.16
Total surplus profits Jan. 1, 1886 . . .	<u>\$142,231.16</u>
Guaranty fund Jan. 1, 1887 . . .	\$100,000.00
Other undivided profits Jan. 1, 1887 . .	45,913.40
Total surplus profits Jan. 1, 1887 . . .	<u>145,913.40</u>
Increase for the year 1886	\$3,682.24

Surplus profits — Jan. 1, 1883, \$107,845.44 ; Jan. 1, 1884, \$120,552.57 ; Jan. 1, 1885, \$130,441.66 ; Jan. 1, 1886, \$142,231.16 ; Jan. 1, 1887, \$145,913.40.

Incorporated 1873. Charter perpetual.

Examination completed Feb. 15, 1887, by Geo. E. Gage and Chas. E. Cooper.

Trustees — P. C. Cheney, A. W. Quint, Moody Currier, A. P. Olzendam, E. M. Topliff, H. M. Putney, Charles H. Bartlett, Edson Hill, George W. Riddle, G. B. Chandler.

Treasurer's bond \$50,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, September, 1874. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Edward M. Brooks.

Annual compensation of treasurer, \$1,800.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by treasurer and executive committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,238 ; increase since last examination by Bank Commissioners, 90.

Amount of deposits, \$689,364.09 ; increase since last examination, \$55,342.73.

Number of single loans of \$1,000 or less to separate parties in the State, 2.

Total amount of loans, \$786,392.27.

Total amount of stocks and bonds, \$36,000.

Largest amount loaned to any individual, corporation, or company, \$10,000.

Amount of assets with interest unpaid for over six months, nothing.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$13,075.

Total amount loaned or invested in New England, \$23,075.

Total amount loaned or invested out of New England, \$799,317.27.

Total amount loaned or invested drawing 4 per cent interest, \$20,000.

Total amount loaned or invested drawing 5 per cent interest, \$5,139.02.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$37,150.

Total amount loaned or invested drawing 6 per cent interest, \$20,925.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$17,575.

Total amount loaned or invested drawing 7 per cent interest, \$681,063.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$9,650.

Total amount loaned or invested drawing 8 per cent interest, \$28,590.

Total amount loaned or invested drawing 9 per cent interest, \$1,000.

Total amount loaned or invested drawing $9\frac{1}{2}$ per cent interest, \$300.

Total amount loaned or invested drawing 10 per cent interest, \$1,000.

Amount invested from which no income has been received during the year, \$1,000.

Dividends for the year ending Dec. 31, 1886: April 1, 1886, 5 per cent, \$29,522.54; January and July, 1886, 8 per cent (guaranty fund), \$8,000.

Total expense of institution for the twelve months ending February, 1887, \$1,866.07.

Amount charged off as losses since last examination, nothing.

No other taxes.

Amount of deposits received since last examination, \$138,582.05.

Amount of dividends declared since last examination, \$29,522.54.

Amount paid on account of deposits since last examination, \$112,761.86.

SCHEDULE OF BONDS OF THE PEOPLE'S SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s	\$25,900.00	\$20,000.00	\$20,000.00
RAILROAD.			
Atchison, Topeka & Santa Fé (land grant), 7s.....	\$12,100.00	\$10,000.00	\$10,000.00
Chicago, Burlington & Quincy, 7s..	1,305.00	1,000.00	1,000.00
	\$13,405.00	\$11,000.00	\$11,000.00
MISCELLANEOUS.			
New Hampshire Trust Co. debentures, 6s.....	\$5,000.00	\$5,000.00	\$5,000.00

PETERBOROUGH SAVINGS BANK.—PETERBOROUGH.

A. A. FARNSWORTH, *President*.M. L. MORRISON, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$639,801.34		\$639,801.34
Guaranty fund.....	26,408.64		26,408.64
Surplus.....	13,678.84		13,678.84
Premium on stocks and bonds.....	31,580.58		
	<u>\$711,469.40</u>		<u>\$679,888.82</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$180,625.71	\$180,625.71	\$180,625.71
Loans secured by local real estate.....	106,929.67	106,929.67	106,929.67
Loans on personal security.....	22,393.20	22,393.20	22,393.20
Loans on personal security (Western).....	7,000.00	7,000.00	7,000.00
Loans on collateral security.....	8,655.00	8,655.00	8,655.00
Western city loans.....	38,915.00	38,915.00	38,915.00
County, city, town, and district bonds.....	102,800.00	98,700.00	86,113.00
Railroad bonds.....	61,270.00	56,250.00	54,332.09
Railroad stock.....	71,067.50	74,900.00	69,175.28
Bank stock.....	70,199.00	57,500.00	64,466.00
Miscellaneous stocks.....	7,580.00	4,750.00	7,249.55
Miscellaneous bonds.....	5,000.00	5,000.00	5,000.00
In hands of investing agents.....	4,900.00	4,900.00	4,900.00
Balance on deposit in First National Bank, Peterborough.....	12.61	12.61	12.61
Real estate (bank building).....	15,388.62	19,000.00	15,388.62
Real estate acquired or held by foreclosure.....	1,042.51	1,042.51	1,042.51
Bank fixtures.....	1,000.00	1,000.00	1,000.00
Cash on hand.....	6,690.58	6,690.58	6,690.58
	<u>\$711,469.40</u>	<u>\$694,264.28</u>	<u>\$679,888.82</u>

Statement of earnings for the year ending Jan. 1, 1887.

Earnings for the year 1886	\$44,266.33
Deduct expenses for 1886	\$2,513.05
Deduct state tax for 1886	6,064.60
Deduct shrinkage in real estate	1,000.00
Deduct items charged off	2,071.24
Interest and premium paid	1,262.18
	<u>12,911.07</u>
Net profits to be accounted for	\$31,355.26

Dividend of 2½ per cent, Jan. 9, 1886	. \$14,650.76
Dividend of 2 per cent, July 10, 1886	. 11,955.74
Carried to guaranty fund . . .	. 3,111.53
Balance of profits for 1886 . . .	. 1,637.23
Net profits (as above) accounted for	. ———— \$31,355.26
Guaranty fund Jan. 1, 1886 . . .	. \$23,297.11
Other undivided profits Jan. 1, 1886	. 19,733.27
Total surplus profits Jan. 1, 1886	. ———— \$43,030.38
Guaranty fund Jan. 1, 1887 . . .	. \$26,408.64
Other undivided profits Jan. 1, 1887	. 21,370.50
Total surplus profits Jan. 1, 1887	. ———— 47,779.14
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Increase for the year 1886	\$4,748.76

Surplus profits — Jan. 1, 1883, \$29,814.95; Jan. 1, 1884, \$36,644.26; Jan. 1, 1885, \$39,887.09; Jan. 1, 1886, \$43,030.38; Jan. 1, 1887, \$47,779.14.

Incorporated 1859. Charter perpetual.

Examination completed March 10, 1887, by George E. Gage and Charles E. Cooper.

Vice-President — None.

Trustees — Frederic Livingston, Daniel B. Cutter, Thomas Little, A. A. Farnsworth, C. H. Brooks, Isaac Hadley, Geo. W. Farrar, W. D. Chase, W. G. Livingston, E. W. McIntosh, J. R. Miller, J. Farnum, M. L. Morrison.

Treasurer's bond \$75,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, April 8, 1873. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Nellie F. Cummings.

Annual compensation of treasurer, \$1,100.

Annual compensation of clerk, \$1 per day.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing; as surety, \$800, by unanimous consent of trustees.

Loans and investments are made by C. H. Brooks, Geo. W. Farrar, E. W. McIntosh.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 2,010; increase since last examination by Bank Commissioners, 56.

Amount of deposits, \$639,801.34; increase since last examination, \$28,564.96.

Number of single loans of \$1,000 or less to separate parties in the State, 107.

Total amount of loans, \$364,518.58.

Total amount of stocks and bonds, \$286,335.92.

Largest amount loaned to any individual, corporation, or company, \$15,000.

Amount of assets with interest unpaid for over six months, \$23,707.40.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$226,528.

Total amount loaned or invested in New England, \$226,528.

Total amount loaned or invested out of New England, \$441,756.63.

Total amount loaned or invested drawing 4 per cent interest, \$17,888.62.

Total amount loaned or invested drawing 5 per cent interest, \$13,800.

Total amount loaned or invested drawing 6 per cent interest, \$224,770.38.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$31,100.

Total amount loaned or invested drawing 7 per cent interest, \$144,276.21.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest, \$25,490.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest, \$9,500.

Total amount loaned or invested drawing 8 per cent interest, \$171,608.

Total amount loaned or invested drawing 9 per cent interest, \$1,950.

Total amount loaned or invested drawing 10 per cent interest, \$15,166.50.

Amount invested from which no income has been received during the year, \$24,500.

Dividends for the year ending Dec. 31, 1886: Jan. 9, 1886, $2\frac{1}{2}$ per cent, \$14,650.76; July 10, 1886, 2 per cent, \$11,955.74.

No extra dividend declared.

Total expense of institution for the twelve months ending March 10, 1887, \$2,340.20.

Amount charged off as losses since last examination, \$2,663.95.

Amount of other taxes, \$188.36.

Amount of deposits received since last examination, \$80,439.

Amount of dividends declared since last examination, \$27,231.67.

Amount paid on account of deposits since last examination, \$79,105.71.

SCHEDULE OF BONDS AND STOCKS OF THE PETERBOROUGH SAV-
INGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Peterborough & Hillsborough, 6½s..	\$5,000.00	\$5,000.00	\$4,775.00
Chicago, Burlington & Quincy, 4s...	965.00	1,000.00	420.00
Chicago, Burlington & Northern, 5s	2,612.50	2,500.00	2,500.00
Northern Pacific, 6s.....	7,020.00	6,000.00	6,000.00
Spokane & Palouse, 6s.....	5,300.00	5,000.00	5,000.00
Sonora, 7s.....	2,060.00	2,000.00	2,000.00
Atchison, Topeka & Santa Fé, 5s....	4,787.50	5,000.00	4,400.00
Little Rock & Fort Smith, 7s.....	5,700.00	5,000.00	5,000.00
Little Rock & Fort Smith, 6s.....	9,280.00	8,000.00	8,000.00
St. Paul & Northern Pacific, 6s.....	5,000.00	5,000.00	4,960.00
Boonville, St. Louis & Southern, 6s.	9,960.00	8,000.00	8,000.00
Chicago, Milwaukee & St. Paul, 7s..	350.00	350.00	350.00
Southern Kansas, 6s.....	1,600.00	1,600.00	1,600.00
Atchison, Topeka & Santa Fé, 5s....	400.00	400.00	400.00
Chicago, Kansas & Western, 5s.....	900.00	900.00	700.00
Chicago, Kansas & Western, 6s.....	335.00	500.00	227.09
	\$61,270.00	\$56,250.00	\$54,332.09
TOWN.			
Peterborough, N. H., 5s.....	\$5,000.00	\$5,000.00	\$3,878.00
Bloomington, Ill., 10s.....	2,140.00	2,000.00	1,900.00
Roseville, Ill., 8s.....	5,250.00	5,000.00	4,375.00
Belle Flower, Ill., 8s.....	32,100.00	30,000.00	26,250.00
Osceola, Ill., 10s.....	13,910.00	13,000.00	12,760.00
CITY.			
St. Louis, Mo., 6s.....	4,000.00	4,000.00	80.00
Newport, Ky., 73-10s.....	7,200.00	6,000.00	5,940.00
Elizabeth, N. J., 7s.....	500.00	1,000.00	930.00
Peoria, Ill., 7s.....	16,000.00	16,000.00	13,600.00
Board of Education, town of Thom- asville, Mo., 8s.....	6,000.00	6,000.00	6,000.00
SCHOOL DISTRICT.			
Richardson County, No. 32, Neb., 7s	3,500.00	3,500.00	3,500.00
Vernon County, Mo., 8s.....	2,200.00	2,200.00	2,200.00
City of Lampasas, Tex., 7s.....	5,000.00	5,000.00	4,700.00
	\$102,800.00	\$98,700.00	\$86,113.00
MISCELLANEOUS.			
Burlington Steam Supply Co., 7s...	\$5,000.00	\$5,000.00	\$5,000.00
STOCKS.			
BANK.			
Peterborough National.....	\$12,369.00	\$9,300.00	\$11,735.00
Francetown ".....	30,000.00	24,000.00	25,927.00
Monadnock ".....	8,510.00	7,400.00	9,414.00
Hillsborough ".....	13,570.00	11,800.00	12,290.00
Citizens' National, Keene.....	650.00	500.00	550.00
Souhegan National, Milford.....	3,000.00	2,500.00	2,550.00
Richardson County, Neb.....	2,100.00	2,000.00	2,000.00
	\$70,199.00	\$57,500.00	\$64,466.00

SCHEDULE OF BONDS AND STOCKS OF THE PETERBOROUGH SAVINGS BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Chicago & Northwestern.....	\$9,640.00	\$8,000.00	\$9,600.00
Chicago, Burlington & Quincy.....	20,860.00	14,900.00	18,347.78
Vermont & Canada.....	1,125.00	7,500.00	6,000.00
Chicago, Burlington & Northern ...	1,350.00	1,500.00	275.00
Atchison, Topeka & Santa Fé.....	24,380.00	23,000.00	19,452.50
Chicago, St. Paul, Minneapolis & Omaha.....	5,600.00	5,000.00	5,000.00
Central Pacific.....	1,962.50	5,000.00	4,500.00
Union Pacific.....	6,150.00	10,000.00	6,000.00
	\$71,067.50	\$74,900.00	\$69,175.28
MISCELLANEOUS.			
Pullman Palace Car Co.....	\$3,800.00	\$2,500.00	\$2,500.00
Niagara Fire Insurance Co.....	3,780.00	2,250.00	4,749.55
	\$7,580.00	\$4,750.00	\$7,249.55

PISCATAQUA SAVINGS BANK. — PORTSMOUTH.

E. P. KIMBALL, *President.*R. C. PIERCE, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$430,967.50		\$430,967.50
Guaranty fund.....	6,000.00		6,000.00
Surplus.....	11,565.16		11,565.16
Premium on stocks and bonds.....	956.29		
	\$449,488.95		\$448,532.66

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$95,950.00	\$95,950.00	\$95,950.00
Loans secured by Western city mortgages	70,200.00	70,200.00	70,200.00
Loans secured by local real estate..	32,325.67	32,325.67	32,325.67
Loans on personal security.....	15,450.00	15,450.00	15,450.00
Loans on personal security (West'n)	5,177.92	5,177.92	5,177.92
Loans on collateral security.....	31,422.00	31,422.00	31,422.00
Loans on collateral security (West-ern).....	10,000.00	10,000.00	10,000.00
Miscellaneous bonds.....	31,640.00	30,000.00	30,470.83
County, city, town, and district bonds	110,098.00	108,234.00	109,779.75
Bank stock.....	36,754.00	27,700.00	37,097.13
Miscellaneous bonds.....	5,814.30	5,814.30	6,002.30
Balance on deposit in First National Bank, Portsmouth.....	3,766.65	3,766.65	3,766.65
Cash on hand	890.41	890.41	890.41
	\$449,488.95	\$436,930.95	\$448,532.66

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$28,748.12
Deduct expenses for 1886	\$670.37
Deduct state tax for 1886	4,046.24
	<u>4,716.61</u>
Net profits to be accounted for	\$24,031.51
Dividend of 2 per cent, January, 1886	\$7,358.39
Dividend of 2 per cent, July, 1886	7,760.78

Carried to guaranty fund	\$1,000.00	
Balance of profits for 1886	7,912.34	
Net profits (as above) accounted for	—————	\$24,031.51
Guaranty fund Jan. 1, 1886	\$5,000.00	
Other undivided profits Jan. 1, 1886	23,345.81	
Total surplus profits Jan. 1, 1886	—————	\$28,345.81
Guaranty fund Jan. 1, 1887	\$6,000.00	
Other undivided profits Jan. 1, 1887	31,258.15	
Total surplus profits Jan. 1, 1887	—————	37,258.15
Increase for the year 1886		<u>\$8,912.34</u>

Surplus profits — Jan. 1, 1883, \$11,552.45; Jan. 1, 1884, \$15,071.79; Jan. 1, 1885, \$17,321.92; Jan. 1, 1886, \$28,345.81; Jan. 1, 1887, \$37,258.15.

Incorporated 1877. Charter perpetual.

Examination completed Oct. 26, 1886, by Geo. E. Gage.

Trustees — E. P. Kimball, J. H. Broughton, J. W. F. Hobbs, E. B. Philbrick, H. A. Yeaton, W. L. Dwight, R. C. Pierce, E. C. Spinney, J. A. Walker, A. F. Howard, J. H. Hutchinson.

Treasurer's bond \$35,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 16, 1881. Sureties of bond are able to respond. Bond deposited with president of bank for safe-keeping.

Annual compensation of treasurer not fixed.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$4,000; as surety, \$1,400, by unanimous consent of trustees.

Loans and investments are made by investment committee; meetings held when necessary.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,186; increase since last examination by Bank Commissioners, 96.

Amount of deposits, \$430,967.50; increase since last examination, \$47,635.31.

None of bank's assets in Boston for safe-keeping.

Number of single loans of \$1,000 or less to separate parties in the State, 22.

Total amount of loans, \$260,525.59.

Total amount of stocks and bonds, \$183,350.01.

Largest amount loaned to any individual, corporation, or company, \$10,000.

Amount of assets with interest unpaid for over six months, \$100.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$98,097.67.

Total amount loaned or invested in New England, \$101,097.67.

Total amount loaned or invested out of New England, \$331,364.22.

Total amount loaned or invested drawing 5 per cent interest, \$5,500.

Total amount loaned or invested drawing 6 per cent interest, \$189,512.98.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$28,000.

Total amount loaned or invested drawing 7 per cent interest, \$166,012.13.

Total amount loaned or invested drawing 8 per cent interest, \$27,048.78.

Total amount loaned or invested drawing 10 per cent interest, \$13,300.

Dividends for the year ending Dec. 31, 1886 : January, 1886, 2 per cent, \$7,358.39 ; July, 1886, 2 per cent, \$7,760.78.

Total expense of institution for the twelve months ending Oct. 26, 1886, \$170.17.

Amount charged off as losses since last examination, nothing.

Amount of other taxes, nothing.

Amount of dividends declared since last examination, \$15,119.17.

Amount of deposits received since last examination, \$124,602.27.

Amount of deposits paid since last examination, \$92,086.13.

SCHEDULE OF BONDS AND STOCKS OF THE PISCATAQUA SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
COUNTY.			
Marion, Ind., 6s.....	\$3,000.00	\$3,000.00	\$3,170.00
Sully, Dak., 7s.....	3,150.00	3,000.00	3,000.00
Green, Ind., 6s.....	4,120.00	4,000.00	4,145.00
Lafayette, Mo., 6s.....	2,150.00	2,000.00	2,000.00
Doniphan, Kan., 6s.....	5,150.00	5,000.00	5,000.00
Cowley, Kan., 6s.....	5,150.00	5,000.00	5,000.00
Dallas, Tex., 7s.....	3,000.00	3,000.00	3,168.67
Otter Tail, Minn., 6s.....	5,150.00	5,000.00	5,181.33
Las Animas, Col., 7s.....	4,000.00	4,000.00	4,000.00
Vigo, Mo., 6s.....	6,000.00	6,000.00	6,075.00
Pueblo, Col., 6s.....	5,150.00	5,000.00	5,075.00
Scioto, O., 6s.....	6,000.00	6,000.00	6,000.00
Tarrant, Tex., 7s.....	4,000.00	4,000.00	4,040.00
	\$56,020.00	\$55,000.00	\$55,795.00
CITY.			
Lamar, Mo., 6s.....	\$5,000.00	\$5,000.00	\$5,075.00
Paola, Kan., 6s.....	5,250.00	5,000.00	5,300.00
Nashua, N. H., 6s.....	214.00	200.00	200.00
Sedalia, Mo., 6s.....	5,390.00	5,500.00	5,065.00
Windsor, Ill., 6s.....	2,000.00	2,000.00	2,000.00
Nebraska City, Neb., 7s.....	5,100.00	5,000.00	5,067.50
	\$22,954.00	\$22,700.00	\$22,647.50
TOWNSHIP.			
Henry, Ill., 7s.....	\$1,000.00	\$1,000.00	\$1,100.00
Ada, O., 7s.....	3,150.00	3,000.00	3,150.00
Pleasant, O., 6s.....	3,150.00	3,000.00	3,090.00
Ottawa, O., 6s.....	6,350.00	6,000.00	6,130.00
Delphos, O., 6s.....	5,000.00	5,000.00	5,070.00
Spencerville, O., 7s.....	500.00	500.00	590.00
	\$19,150.00	\$18,500.00	\$19,130.00
SCHOOL DISTRICT.			
Maysville, Mo., 6s.....	\$3,000.00	\$3,000.00	\$3,000.00
Rushville, Ind., 6s.....	6,400.00	6,400.00	6,573.25
Dakota school warrants, Dak., 8s..	634.00	634.00	634.00
Moberly, Mo., 6s.....	1,940.00	2,000.00	2,000.00
	\$11,974.00	\$12,034.00	\$12,207.25
RECAPITULATION.			
City.....	\$22,954.00	\$22,700.00	\$22,647.50
County.....	56,020.00	55,000.00	55,795.00
School District.....	11,974.00	12,034.00	12,207.25
Township.....	19,150.00	18,500.00	19,130.00
	\$110,098.00	\$108,234.00	\$109,779.75
MISCELLANEOUS.			
Omaha Water Co., Neb., 6s.....	\$5,500.00	\$5,000.00	\$5,070.83
Indianapolis Water Co., Mo., 6s....	8,640.00	8,000.00	8,400.00
Keystone Gas Co., Penn., 6s.....	2,000.00	2,000.00	2,000.00
Independence Water Co., Mo., 7s...	5,000.00	5,000.00	5,000.00
Sioux City Water-works, Io., 7s.....	5,500.00	5,000.00	5,000.00
National Water-works, N. Y., 6s....	5,000.00	5,000.00	5,000.00
	\$31,640.00	\$30,000.00	\$30,470.83

SCHEDULE OF BONDS AND STOCKS OF THE PISCATAQUA SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS. — <i>Continued.</i>			
Dakota county warrants, 7s.....	\$1,459.21	\$1,459.21	\$1,459.21
Colorado warrants, 6s.....	615.31	615.31	688.58
Sweet Water warrants, Wyo., 8s....	3,739.78	3,739.78	3,854.51
	\$5,814.30	\$5,814.30	\$6,002.30
STOCKS.			
BANK.			
Commonwealth National, Boston..	\$3,720.00	\$3,000.00	\$3,730.00
Central National, N. Y.....	3,429.00	2,700.00	3,489.38
Merchants' National, Kansas City..	3,465.00	3,300.00	3,335.00
Granite State National, Exeter.....	2,000.00	2,000.00	2,600.00
First National, Portsmouth.....	20,615.00	13,300.00	20,310.00
Mechanics and Traders', Ports- mouth	625.00	500.00	545.75
New Hampshire, Portsmouth.....	2,900.00	2,900.00	3,087.00
	\$36,754.00	\$27,700.00	\$37,097.13

PITTSFIELD SAVINGS BANK. — PITTSFIELD.

R. L. FRENCH, *President.*GEORGE F. BERRY, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$294,277.83		\$294,277.83
Guaranty fund.....	6,500.00		6,500.00
Surplus	4,113.44		4,113.44
Premium on stocks and bonds.....	2,449.00		
	<u>\$307,340.27</u>		<u>\$304,891.27</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$117,698.00	\$117,698.00	\$117,698.00
Loans secured by Western city mortgages.....	12,000.00	12,000.00	12,000.00
Loans secured by local real estate.	34,984.99	34,984.99	34,984.99
Loans on personal security.....	34,644.65	34,644.65	34,644.65
Loans on collateral security.....	43,116.00	43,116.00	43,116.00
County, city, town, and district bonds.....	9,874.00	9,425.00	9,545.00
Railroad bonds.....	20,170.00	18,500.00	18,500.00
Railroad stock.....	1,815.00	4,450.00	2,250.00
Bank stock.....	650.00	500.00	500.00
Miscellaneous stocks.....	525.00	500.00	500.00
Miscellaneous bonds.....	24,260.00	23,600.00	23,550.00
Balance on deposit in Merchants' National Bank, Manchester.....	2,710.50	2,710.50	2,710.50
Real estate purchased for the bank	4,287.64	4,287.64	4,287.64
Cash on hand.....	604.49	604.49	604.49
	<u>\$307,340.27</u>	<u>\$307,021.27</u>	<u>\$304,891.27</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$16,891.37
Deduct expenses for 1886	\$1,458.70
Deduct state tax for 1886	2,469.82
Shrinkage in real estate, \$756.48.	
Deduct items charged off	114.12
	<u>4,042.64</u>
Net profits to be accounted for	\$12,848.73

Dividend of 4 per cent, April 1, 1886	. \$9,886.64
Carried to guaranty fund	. . . 1,256.48
Balance of profits for 1886	. . . 1,705.61

Net profits (as above) accounted for	. . . \$12,848.73
Guaranty fund Jan. 1, 1886	. . . \$6,000.00
Other undivided profits Jan. 1, 1886	. . . 6,963.49
Total surplus profits Jan. 1, 1886	. . . \$12,963.49
Guaranty fund Jan. 1, 1887, less \$756.48	\$6,500.00
Other undivided profits Jan. 1, 1887	. . . 8,669.10
Total surplus profits Jan. 1, 1887	. . . 15,169.10
Increase for the year 1886	. . . \$2,205.61
Surplus profits — Jan. 1, 1883, \$7,092; Jan. 1, 1884, \$8,227; Jan. 1, 1885, \$5,498.20; Jan. 1, 1886, \$12,963.49; Jan. 1, 1887, \$15,169.10.	

Incorporated 1858. Charter perpetual.

Examination completed April 29, 1887, by George E. Gage.

Trustees — R. L. French, T. H. Thorndike, A. B. Taylor, J. Clough, George E. Kent, J. J. Jenness, B. J. Parsons, G. F. Berry, B. F. Kaime, W. G. French, E. L. Carr, P. J. Hook, L. Brown, H. A. Tuttle, S. J. Winslow.

Treasurer's bond \$35,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, June 25, 1882. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$900.

Clerk — Mabel Blake.

Annual compensation of clerk, \$250.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$7,140.26; as surety, \$8,709.35, by unanimous consent of trustees.

Loans and investments are made by R. L. French, H. A. Tuttle, B. F. Kaime, E. L. Carr, S. J. Winslow, P. J. Hook.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in Manchester Bank.

Number of depositors, 1,280; increase since last examination by Bank Commissioners, 22.

Amount of deposits, \$294,277.83; increase since last examination, \$31,061.44.

Amount of bank's assets in Concord for safe-keeping, \$26,000.

Number of single loans of \$1,000 or less to separate parties in the State, 147.

Total amount of loans, \$242,443.64.

Total amount of stocks and bonds, \$56,975.

Largest amount loaned to any individual, corporation, or company, \$31,000.

Amount of assets with interest unpaid for over six months, \$2,950.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$124,183.28.

Total amount loaned or invested in New England, \$124,183.28.

Total amount loaned or invested out of New England, \$177,393.

Total amount loaned or invested drawing 5 per cent interest, \$150.

Total amount loaned or invested drawing $5\frac{1}{2}$ per cent interest, \$31,000.

Total amount loaned or invested drawing 6 per cent interest, \$158,715.64.

Total amount loaned or invested drawing $6\frac{1}{4}$ per cent interest, \$1,000.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$7,550.

Total amount loaned or invested drawing 7 per cent interest, \$76,023.

Total amount loaned or invested drawing 8 per cent interest, \$13,700.

Total amount loaned or invested drawing 9 per cent interest, \$2,250.

Total amount loaned or invested drawing 10 per cent interest, \$2,950.

Amount invested from which no income has been received during the year, \$4,450.

Dividends for the year ending Dec. 31, 1886: April 1, 1886, 4 per cent, \$9,886.64.

Total expense of institution for the twelve months ending April 29, 1887, \$1,355.39.

Amount charged off as losses since last examination, \$756.48.

Amount of other taxes, \$119.16.

Amount of deposits received since last examination, \$92,157.66.

Amount of dividends declared since last examination, \$20,453.64.

Amount paid on account of deposits since last examination, \$81,549.86.

SCHEDULE OF BONDS AND STOCKS OF THE PITTSFIELD SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Terre Haute & Southeastern, 7s....	\$2,200.00	\$2,000.00	\$2,000.00
Boston, Concord & Montreal, 6s....	6,600.00	6,000.00	6,000.00
Boston, Concord & Montreal, 6s....	2,270.00	2,000.00	2,000.00
Brunswick & Chillicothe, 6s.....	500.00	500.00	500.00
Kansas Pacific, 6s.....	3,450.00	3,000.00	3,000.00
Oregon Short Line, 6s.....	5,150.00	5,000.00	5,000.00
	\$20,170.00	\$18,500.00	\$18,500.00
COUNTY.			
Douglas, Neb., 7s.....	\$2,100.00	\$2,000.00	\$2,000.00
Clay, Minn., 7s.....	3,240.00	3,000.00	3,000.00
TOWNSHIP.			
Pittsfield, N. H., 5s.....	159.00	150.00	150.00
SCHOOL DISTRICT.			
What Cheer, Dak., 6s.....	1,000.00	1,000.00	1,000.00
New Market, Io., 6s.....	1,000.00	1,000.00	1,000.00
Walsh County, No. 3, Dak., 8s.....	2,100.00	2,000.00	2,120.00
Greeley County, No. 18, Neb., 7s....	275.00	275.00	275.00
	\$9,874.00	\$9,425.00	\$9,545.00
MISCELLANEOUS.			
Central Loan and Land Co. debentures, 6s.....	\$1,500.00	\$1,500.00	\$1,500.00
New England Loan and Trust Co. debentures, 7s.....	600.00	600.00	600.00
Nebraska Loan and Trust Co. debentures, 6s.....	3,500.00	3,500.00	3,500.00
New Hampshire Trust Co. debentures, 6s.....	6,000.00	6,000.00	6,000.00
Lombard debentures, 6s.....	500.00	500.00	500.00
Salina Water-works, 6s.....	1,050.00	1,000.00	1,000.00
Winfield Water-works, 6s.....	2,000.00	2,000.00	1,950.00
Topeka Water-works, 6s.....	5,650.00	5,000.00	5,000.00
National Water-works, 6s.....	1,960.00	2,000.00	2,000.00
Fort Plain Water-works, 6s.....	1,500.00	1,500.00	1,500.00
	\$24,260.00	\$23,600.00	\$23,550.00
STOCKS.			
BANK.			
Merchants' National, Manchester ..	\$650.00	\$500.00	\$500.00
RAILROAD.			
Union Pacific.....	\$615.00	\$1,000.00	\$750.00
Cincinnati, Lebanon & Northern...	1,200.00	3,450.00	1,500.00
	\$1,815.00	\$4,450.00	\$2,250.00
MISCELLANEOUS.			
New Hampshire Trust Co.....	\$525.00	\$500.00	\$500.00

PORTSMOUTH SAVINGS BANK.—PORTSMOUTH.

WILLIAM H. ROLLINS, *President*. GEORGE TOMPSON, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors	\$3,271,500.90	\$3,271,500.90
Guaranty fund	154,417.49	154,417.49
Surplus	199,936.01	199,936.01
Premium on stocks and bonds.....	91,535.41	
	<u>\$3,717,389.81</u>	<u>\$3,625,854.40</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$632,635.49	\$632,635.49	\$632,635.49
Loans secured by Western city mortgages.....	899,512.75	899,512.75	899,512.75
Loans secured by local real estate.....	249,430.61	249,430.61	249,430.61
Loans on personal security	62,035.84	62,035.84	62,035.84
Loans on personal security (Western).....	34,550.10	34,550.10	34,550.10
Loans on collateral security.....	63,088.27	63,088.27	63,088.27
United States bonds.....	126,950.00	107,000.00	107,000.00
County, city, town, and district bonds.....	882,689.12	847,464.62	834,079.46
Railroad stock.....	8,320.00	49,600.00	12,000.00
Bank stock.....	36,705.00	28,600.00	34,629.00
History books, 4 per cent.....	1,527.63	1,527.63	1,527.63
Miscellaneous bonds.....	565,981.20	549,900.20	541,101.45
Miscellaneous stocks.....	8,000.00	20,000.00	8,300.00
Balance on deposit in Mechanics and Traders' National Bank.....	48,156.73	48,156.73	48,156.73
In hands of investing agents	2,587.92	2,587.92	2,587.92
Real estate purchased for the bank (bank building.)	10,000.00	10,000.00	10,000.00
Real estate acquired or held by foreclosure.....	73,277.09	73,277.09	73,277.09
Cash on hand.....	11,942.06	11,942.06	11,942.06
	<u>\$3,717,389.81</u>	<u>\$3,691,309.31</u>	<u>\$3,625,854.40</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$236,641.23
Deduct expenses for 1886	\$8,462.41
Deduct state tax for 1886	31,327.70
Deduct shrinkage in real estate	1,307.43
Deduct items charged off	15,312.91
	<u>56,410.45</u>

Net profits to be accounted for \$180,230.78

Dividend of 2 per cent, July, 1886	. \$62,762.20
Dividend of 2 per cent, January, 1887	. 63,845.29
Carried to guaranty fund	. 17,023.08
Balance of profits for 1886	. 36,600.21
Net profits (as above) accounted for	. —————\$180,230.78
Guaranty fund Jan. 1, 1886	. \$145,901.02
Other undivided profits Jan. 1, 1886	. 112,973.70
Total surplus profits Jan. 1, 1886	. —————\$258,874.72
Guaranty fund Jan. 1, 1887	. \$162,924.10
Other undivided profits Jan. 1, 1887	. 149,573.91
Total surplus profits Jan. 1, 1887	. ————— 312,498.01
Increase for the year 1886	. . . . . \$53,623.29

Surplus profits — Jan. 1, 1883, \$104,101.47; Jan. 1, 1884, \$150,-494.32; Jan. 1, 1885, \$213,687.22; Jan. 1, 1886, \$258,874.72; Jan. 1, 1887, \$312,498.01.

Incorporated 1823. Charter perpetual.

Examination completed Nov. 1, 1886, by George E. Gage.

Vice-President — None.

Trustees — Samuel Adams, J. H. Thacher, C. H. Hendum, John Knowlton, John Sise, Benj. F. Webster, John Leighton, C. H. Rollins, Daniel Marcy, Henry M. Clark, Marcellus Bufford, Thomas E. Call, John S. Pray, C. M. Leighton, W. Freeman, W. W. Cotton, Geo. Annable, James W. Emery.

Treasurer's bond \$190,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, May 2, 1885. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — A. C. Hoyt.

Annual compensation of treasurer, \$2,800.

Annual compensation of clerk, \$1,700.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$4,375; as surety, \$25,000, by unanimous consent of trustees.

Loans and investments are made by investment committee.

Reports are made as required by law.

This bank receives 2 per cent interest on \$20,000, 1½ per cent on excess of \$20,000, on its deposits in other banks.

Number of depositors, 9,327; increase since last examination by Bank Commissioners, 539.

Amount of deposits, \$3,271,500.90; increase since last examination, \$92,476.61.

Number of single loans of \$1,000 or less to separate parties in the State, 202.

Total amount of loans, \$1,941,253.06.

Total amount of stocks and bonds, \$1,537,109.91.

Largest amount loaned to any individual, corporation, or company, \$25,750.

Amount of assets with interest unpaid for over six months, \$33,338.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$530,341.43.

Total amount loaned or invested in New England, \$563,641 43.

Total amount loaned or invested out of New England, \$2,999,526.26.

Total amount loaned or invested drawing 4 per cent interest, \$70,500.

Total amount loaned or invested drawing 4½ per cent interest, \$72,000.

Total amount loaned or invested drawing 5 per cent interest, \$60,640.

Total amount loaned or invested drawing 6 per cent interest, \$1,289,571.70.

Total amount loaned or invested drawing 6½ per cent interest, \$163,600.

Total amount loaned or invested drawing 7 per cent interest, \$1,271,897.08.

Total amount loaned or invested drawing 7½ per cent interest, \$88,050.

Total amount loaned or invested drawing 8 per cent interest, \$313,624.56.

Total amount loaned or invested drawing 9 per cent interest, \$23,200.

Total amount loaned or invested drawing 10 per cent interest, \$118,734.54.

Amount invested from which no income has been received during the year, \$136,733.95.

Dividends for the year ending Dec. 31, 1886: July, 1886, 2 per cent, \$62,762.20; January, 1887, 2 per cent, \$63,845.29.

No extra dividend declared.

Total expense of institution for the twelve months ending Nov. 1, 1886, \$9,139.40.

Amount charged off as losses since last examination, \$17,074.30.

Amount of other taxes, \$1,365.41.

Amount of deposits received since last examination, \$404,645.70.

Amount of dividends declared since last examination, \$124,695.35.

Amount paid on account of deposits since last examination, \$436,864.44.

SCHEDULE OF BONDS AND STOCKS OF THE PORTSMOUTH SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
UNITED STATES.			
United States, 4s	\$64,250.00	\$50,000.00	\$50,000.00
United States, 4½s	62,700.00	57,000.00	57,000.00
	\$126,950.00	\$107,000.00	\$107,000.00
COUNTY.			
Adair, Mo., 10s	\$33,000.00	\$30,000.00	\$31,000.00
Dakota, Neb., 6s....	7,000.00	7,000.00	6,930.00
Pulaski, Ill., 6s.....	2,065.00	2,065.00	2,065.00
Alexander, Mo., 6s.....	1,016.10	1,016.10	1,016.10
Crawford, Ill., 10s.....	2,020.00	2,000.00	2,135.00
Barber, Kan., 6s.....	10,100.00	10,000.00	9,850.00
Boone, Ind., 6s.....	9,595.00	9,500.00	9,532.57
Leavenworth, Kan., 5s	17,000.00	17,000.00	15,680.00
Auglaize, O., 6s.....	1,000.00	1,000.00	970.00
Lee, Io., 6s	17,000.00	17,000.00	17,000.00
Montgomery, Kan., 7s.....	12,000.00	12,000.00	12,000.00
Adams, Ill., 6s	10,000.00	10,000.00	9,500.00
Blackford, Ind., 7s.....	4,200.00	4,200.00	4,200.00
St. Louis, Mo., 6s.....	24,600.00	20,000.00	20,000.00
Huntingdon, Ind., 6s.....	6,000.00	6,000.00	6,000.00
Parke, Ind., 6s.....	12,000.00	12,000.00	12,000.00
Otter Tail, Ind., 6s.....	10,300.00	10,000.00	9,700.00
Mercer, Ill., 6s.....	950.00	950.00	950.00
Champaign, O., 6s.....	500.00	500.00	446.00
Wood, O., 7s.....	10,100.00	10,000.00	10,000.00
Putnam, Ind., 6s	5,000.00	5,000.00	4,950.00
Henry, Io., 7s.....	5,050.00	5,000.00	5,000.00
Norton, Kan., 8s.....	1,120.00	1,000.00	1,065.90
	\$201,616.10	\$193,231.10	\$191,990.57
CITY.			
Carthage, Mo., 6s.....	\$10,800.00	\$10,000.00	\$10,000.00
Des Moines, Io., 7s.....	15,400.00	14,000.00	14,000.00
Anderson, Ind., 6s.....	2,000.00	2,000.00	2,000.00
Lima, O., 6s	5,300.00	5,000.00	5,000.00
East St. Louis, Ill.	450.00	500.00	500.00
Evansville, Ind., 7s.....	11,250.00	15,000.00	15,000.00
Council Bluffs, Io., 10s.....	15,504.54	15,504.54	14,078.30
Warsaw, Ind., 7s.....	5,600.00	5,000.00	5,000.00
Dubuque, Io., 6s	5,350.00	5,000.00	5,000.00
McGregor, Io., 5s	6,000.00	6,000.00	5,160.00
Muscatine, Io., 6s.....	17,850.00	17,000.00	15,300.00
Warsaw, Wis., 7s.....	10,600.00	10,000.00	10,000.00
Iowa City, Io., 8s.....	11,000.00	10,000.00	10,000.00
Ironton, O., 8s.....	10,000.00	10,000.00	10,000.00
Port Huron, Mich., 7s.....	4,155.07	4,155.07	4,155.07
Brazil, Ind., 9s.....	11,000.00	10,000.00	10,000.00
Warsaw, Ill., 6s	15,450.00	14,575.00	13,359.00
Cairo, Ill., 6s	2,260.92	2,260.92	2,260.92
Portsmouth, N. H., 6s.....	15,120.00	14,000.00	14,000.00
Portsmouth, N. H., 4s	20,160.00	18,000.00	17,685.00
Sedalia, Mo., 5s.....	14,700.00	15,000.00	14,250.00
Beardstown, Ill., 10s.....	735.00	700.00	700.00
Nebraska City, Neb., 7s.....	12,320.00	11,200.00	11,200.00
Ottawa, Kan., 7s	16,430.00	15,500.00	15,500.00
Toledo, O., 5s.....	2,000.00	2,000.00	2,000.00
Kansas City, Mo., 10s	9,100.00	7,000.00	7,000.00
Jacksonville, Ill., 6s.....	20,000.00	20,000.00	20,000.00
Amount carried forward.....	\$270,535.53	\$259,395.53	\$253,148.29

SCHEDULE OF BONDS AND STOCKS OF THE PORTSMOUTH SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
CITY. — <i>Continued.</i>			
<i>Amount brought forward</i>	\$270,535.53	\$259,395.53	\$253,148.29
Minneapolis, Minn., 4½s	16,200.00	15,000.00	15,000.00
Litchfield, Ill., 10s	10,000.00	10,000.00	5,000.00
St. Louis, Mo., 6s	4,120.00	4,000.00	4,000.00
St. Louis, Mo., 5s	16,500.00	15,000.00	15,000.00
Mt. Vernon, Ind., 6s	13,884.00	13,200.00	12,315.00
Oquawka, Ill., 6s	3,275.00	3,150.00	3,150.00
Leavenworth, Kan., 4s	2,500.00	2,500.00	1,825.00
Springfield, Ill., 8s	11,550.00	10,500.00	10,500.00
Springfield, Ill., 7s	25,500.00	25,000.00	25,000.00
West Chicago, Ill., 7s	5,500.00	5,000.00	5,000.00
Erie, Penn., 7s	15,750.00	15,000.00	15,000.00
Boone, Io., 6s	15,000.00	15,000.00	15,075.00
	\$410,314.53	\$392,745.53	\$380,013.29
TOWNSHIP.			
Bloomington, Ill., 7s	\$23,460.00	\$23,000.00	\$23,000.00
Champaign, Ill., 8s	12,190.00	11,500.00	11,500.00
Morrisonville, Ill., 7s	7,140.00	7,000.00	7,000.00
Monticello, Ill., 8s	5,000.00	5,000.00	5,000.00
Pleasant, O., 6s	10,400.00	10,000.00	10,000.00
Teutopolis, Ill., 6s	8,025.00	7,500.00	7,502.00
Ada, O., 6s	8,400.00	8,000.00	8,000.00
Gosport, N. H., 6s	4,667.99	4,667.99	4,667.99
Bedford, Ind., 6s	10,500.00	10,500.00	10,500.00
Clinton, Mo., 6s	8,000.00	8,000.00	8,000.00
Blue Rapids, Kan., 6s	1,060.00	1,000.00	1,000.00
Frederick, Ill., 8s	2,100.00	2,000.00	2,000.00
Marysville, Kan., 7s	3,240.00	3,000.00	3,000.00
New Castle, Ind., 6s	7,000.00	7,000.00	7,000.00
Union, O., 6s	10,500.00	10,000.00	10,050.00
Middleport, O., 6s	21,840.00	21,000.00	21,600.00
Andrews, Ind., 7s	8,320.00	8,000.00	8,000.00
Evanston, Ill., 7s	5,830.00	5,500.00	5,500.00
Montevideo, Minn., 8s	5,400.00	5,000.00	5,325.00
Lovejoy, Ill., 7s	7,000.00	7,000.00	7,164.29
Carson, Io., 8s	1,200.00	1,200.00	1,200.00
Van Buren, Io., 6s	16,640.00	16,000.00	16,000.00
Quincy, Kan., 6s	4,200.00	4,000.00	4,080.00
South Haven, Kan., 6s	5,000.00	5,000.00	5,000.00
	\$197,112.99	\$190,867.99	\$191,489.28
SCHOOL DISTRICT.			
Gage County, No. 132, Neb., 7s	\$475.00	\$475.00	\$465.50
Buffalo County, No. 64, Neb., 7s	300.00	300.00	294.00
“ “ “ 74, “ 7s	250.00	250.00	245.00
Vernon “ Sheldon, Mo., 10s ..	1,632.00	1,600.00	1,720.00
Henry “ No. 1, Mo., 10s	535.00	530.00	530.00
Dade “ “ 4, “ 10s	520.00	500.00	500.00
Knox “ “ 13, Neb., 7s	3,465.00	3,300.00	3,234.00
Christian “ Nos. 5, 24, 27, Mo., 8s	2,120.00	2,000.00	2,000.00
Pawnee “ No. 1, Neb., 10s	10,080.00	9,000.00	9,500.00
Morgan “ “ 1, Ill., 7s	10,000.00	10,000.00	10,000.00
Seward “ “ 5, Neb., 7s	1,500.00	1,500.00	1,500.00
Barton “ Kenoma, Mo., 8s	802.50	750.00	750.00
“ “ Milford, “ 8s	1,575.00	1,500.00	1,500.00
“ “ Golden City, Mo., 10s ..	515.00	500.00	500.00
<i>Amount carried forward</i>	\$33,769.50	\$32,205.00	\$32,738.50

SCHEDULE OF BONDS AND STOCKS OF THE PORTSMOUTH SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT. — <i>Continued.</i>			
<i>Amount brought forward</i>	\$33,769.50	\$32,205.00	\$32,738.50
Lawrence County, Nos. 8, 6, 6, Mo., 10s and 8s.....	3,399.00	3,300.00	\$3,358.82
Jasper Co., sund. dists., Mo., 10s & 9s	12,833.00	12,050.00	11,515.00
Jefferson County, No. 22, Neb., 10s..	100.00	100.00	100.00
“ “ Nos. 3, 19, Neb., 7s	1,030.00	1,000.00	1,000.00
Meeker “ No. 60, Minn., 9s..	550.00	525.00	525.00
Jasper Co., Nos. 1, 7, Mo., 6s and 9s	3,296.00	3,200.00	3,100.00
Nemaha County, No. 85, Kan., 6s....	690.00	690.00	690.00
Nodaway “ Mo., 10s.....	1,836.00	1,800.00	1,800.00
Butler “ Neb., 7s.....	150.00	150.00	147.00
Delmar, Io., 7s.....	1,272.00	1,200.00	1,212.00
Oakland, Gibson County, Neb., 6s...	4,080.00	4,000.00	4,000.00
Bethal County, Io., 7s.....	1,030.00	1,000.00	1,000.00
Hinsdale, Du Page County, Ill., 6s..	1,010.00	1,000.00	1,000.00
Onawa (Independent), Io., 6s.....	5,200.00	5,000.00	5,000.00
Willshire, Van Wert County, O., 6s	1,500.00	1,500.00	1,500.00
Cass, Sullivan County, Ind., 7s.....	1,000.00	1,000.00	1,000.00
Benton, Mills County, Io., 6s.....	900.00	900.00	900.00
	\$73,645.50	\$70,620.00	\$70,586.32
RECAPITULATION.			
City	\$410,314.53	\$392,745.53	\$380,013.29
County.....	201,616.10	193,231.10	191,990.57
Township.....	197,112.99	190,867.99	191,489.28
School District.....	73,645.50	70,620.00	70,586.32
	\$882,689.12	\$847,464.62	\$834,079.46
MISCELLANEOUS.			
Lake Gas Co., Ill., 7s.....	\$23,520.00	\$24,000.00	\$24,000.00
Galena “ “ 8s.....	21,000.00	20,000.00	20,300.00
Clay Centre Water Co., Kan., 7s....	19,000.00	19,000.00	18,900.00
Pitts's Sons Manuf. Co., Ill., 7s.....	13,000.00	13,000.00	9,000.00
Des Moines Land Co., Io., 7s.....	10,000.00	10,000.00	10,000.00
Danville Water-works, Ill., 6s.....	10,000.00	10,000.00	9,800.00
Leavenworth “ Kan., 6s....	32,770.00	29,000.00	28,260.00
Atlantic “ Io., 6s.....	10,000.00	10,000.00	9,900.00
Salina “ Kan., 6s....	10,000.00	10,000.00	9,800.00
Nyack “ N. Y., 6s....	7,420.00	7,000.00	7,000.00
Galesburg “ Ill., 6s.....	5,000.00	5,000.00	5,500.00
U. S. Encaustic Tile Co., Ind., 6s...	36,561.20	37,900.20	36,561.20
“ “ “ Works, Ind., 6s	40,000.00	40,000.00	40,000.00
Joliet Water-works, Ill., 6s.....	19,000.00	19,000.00	19,000.00
Omaha “ Neb., 6s.....	22,260.00	21,000.00	21,000.00
Towanda “ Penn., 6s.....	5,000.00	5,000.00	5,000.00
Athol “ Mass., 6s.....	26,250.00	25,000.00	25,000.00
Owego “ N. Y., 6s.....	20,000.00	20,000.00	20,000.00
Tiffin “ O., 6s.....	12,000.00	12,000.00	12,000.00
Niles “ Mich., 7s.....	21,000.00	20,000.00	20,000.00
Lexington “ Ky., 6s.....	21,000.00	20,000.00	19,530.00
Newton Water Co., Kan., 7s.....	21,050.00	21,000.00	20,715.00
Marseilles Water Co., Ill., 6s.....	5,300.00	5,000.00	4,750.00
Homer Water-works, N. Y., 6s.....	3,300.00	3,000.00	2,900.00
Carthage “ Mo., 6s.....	46,200.00	42,000.00	39,850.00
National “ Kan., 6s.....	37,000.00	37,000.00	36,750.00
Ottumwa “ Io., 6s.....	25,500.00	25,000.00	25,000.00
Moberly Gas-light Co.....	500.00	500.00	435.25
Municipal Gas-light Co., Rochester, N. Y., 6s	5,250.00	5,000.00	5,025.00
Excelsior Gas and Coke Works, Kan., 7s.....	32,100.00	30,000.00	30,000.00
Grand Island, Neb., 6s.....	5,000.00	5,000.00	5,125.00
	\$565,981.20	\$550,400.20	\$541,101.45

SCHEDULE OF BONDS AND STOCKS OF THE PORTSMOUTH SAVINGS
BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
BANK.			
New Hampshire National.....	\$1,900.00	\$1,900.00	\$2,007.50
National Mechanics and Traders'...	15,500.00	12,400.00	15,410.00
Rockingham National.....	19,305.00	14,300.00	17,211.50
	\$36,705.00	\$28,600.00	\$34,629.00
RAILROAD.			
White Water.....	\$4,000.00	\$40,000.00	\$12,000.00
“ preferred.....	3,520.00	8,800.00	
“ scrip.....	800.00	800.00	
	\$8,320.00	\$49,600.00	\$12,000.00
MISCELLANEOUS.			
East Cambridge Land Co.....	\$8,000.00	\$20,000.00	\$8,300.00

PORTSMOUTH TRUST AND GUARANTY COMPANY. — PORTSMOUTH.

JEREMIAH F. HALL, *Pres.*CHARLES H. ROLLINS, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors	\$412,958.11		\$412,958.11
Guaranty fund	100,000.00		100,000.00
Surplus.....	8,069.87		8,069.87
Dividend unpaid	81.00		81.00
Premium on stocks and bonds.....	11,459.04		
	<u>\$532,568.02</u>		<u>\$521,108.98</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$194,075.00	\$194,075.00	\$194,075.00
Loans secured by Florida mortgages	71,400.00	71,400.00	71,400.00
Loans secured by local real estate.	9,146.14	9,146.14	9,146.14
Loans on personal security.....	1,250.00	1,250.00	1,250.00
Loans on personal security (Western).....	10,000.00	10,000.00	10,000.00
Loans on collateral security.....	790.00	790.00	790.00
Loans on collateral security (Florida).....	6,750.00	6,750.00	6,750.00
County, city, town, and district bonds.....	36,415.00	35,300.00	36,150.00
Railroad bonds.	61,722.50	65,500.00	55,350.00
Railroad stock.....	15,433.00	14,700.00	12,450.00
Bank stock.....	3,047.00	2,900.00	3,175.00
Miscellaneous bonds.....	10,511.00	11,072.50	10,111.00
Miscellaneous investments (warrants), 9 per cent.....	59,517.68	59,517.68	57,951.14
Balance on deposit in New Hampshire National Bank.....	2,300.80	2,300.80	2,300.80
Real estate acquired or held by foreclosure.....	49,576.00	49,576.00	49,576.00
Cash on hand.....	633.90	633.90	633.90
	<u>\$532,568.02</u>	<u>\$534,912.02</u>	<u>\$521,108.98</u>

NOTE. — This bank credits each day the amount due each depositor as dividend. The surplus shown above is the amount on hand after all dividends have been credited to each individual account, and after paying all expenses and taxes.

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$34,017.24
Deduct expenses for 1886	\$1,875.51
Deduct state tax for 1886	4,307.89

Other taxes	\$927.44	
Deduct items charged off	500.00	
	<hr/>	\$7,610.84

Net profits to be accounted for \$26,406.40

Dividend of 4 per cent, 1886, regular depositors \$15,073.60

Dividend of 6 per cent, 1886, special depositors 6,000.00

Interest on investments 1,747.28

Balance of profits for 1886 3,585.52

Net profits (as above) accounted for \$26,406.40

Guaranty fund Dec. 1, 1885 \$100,000.00

Other undivided profits Dec. 1, 1885 2,311.93

Total surplus profits Dec. 1, 1885 \$102,311.93

Guaranty fund Dec. 1, 1886 \$100,000.00

Other undivided profits Dec. 1, 1886 5,897.45

Total surplus profits Dec. 1, 1886 105,897.45

Increase for the year 1886 \$3,585.52

Surplus profits and guaranty fund — Dec. 1, 1885, \$102,311.93;
Dec. 1, 1886, \$105,897.45.

Incorporated 1871. Charter perpetual.

Examination completed Oct. 15, 1886, by George E. Gage.

Vice-President — Frank Jones.

Directors — Frank Jones, Jeremiah F. Hall, Samuel J. Gerrish, Jeremiah Sanborn, William D. Fernald, W. H. Gerrish, Charles A. Sinclair, Daniel Marcy, Calvin Page, M. Eldredge.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 20, 1885. Sureties of bond are able to respond. Bond deposited with president of company for safe-keeping.

Clerk — William L. Conlon.

Annual compensation of treasurer, \$1,000.

Annual compensation of clerk, \$400.

Officers have taken their official oath.

Indebtedness of directors as principal, nothing; as surety, \$4,250, by unanimous consent of directors.

Loans and investments are made by directors.

Reports are made as required by law.

This bank receives $1\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 744; increase since last examination by Bank Commissioners, 28.

Amount of deposits, \$412,958.11; increase since last examination, \$21,314.95.

Number of single loans of \$1,000 or less to separate parties in the State, 26.

Total amount of loans, \$293,411.14.

Total amount of stocks and bonds, \$175,187.14.

Largest amount loaned to any individual, corporation, or company, \$50,000.

Amount of notes with interest unpaid for over six months, \$600.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$120,852.14.

Total amount loaned or invested in New England, \$122,502.14.

Total amount loaned or invested out of New England, \$395,672.14.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest, \$40,500.

Total amount loaned or invested drawing 6 per cent interest, \$40,805.64.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$6,750.

Total amount loaned or invested drawing 7 per cent interest, \$152,225.

Total amount loaned or invested drawing 8 per cent interest, \$74,175.

Total amount loaned or invested drawing 9 per cent interest, \$64,117.68.

Total amount loaned or invested drawing 10 per cent interest, \$11,712.50.

Total amount loaned or invested drawing 12 per cent interest, \$7,400.

Total amount loaned or invested drawing 15 per cent interest, \$61,000.

Amount invested from which no income has been received during the year, \$24,625.

Dividends for the year ending Dec. 31, 1886: 4 per cent, 1886, to regular depositors — \$15,073.60; 6 per cent, 1886, to special depositors — \$6,000.

Total expense of institution for the twelve months ending Dec. 1, 1886, \$1,875.51.

Nothing charged off as losses since last examination.

Amount of other taxes, \$927.44.

Amount of deposits received since last examination, \$172,871.79.

Amount of dividends declared since last examination, \$15,466.07.

Amount paid on account of deposits since last examination, \$167,022.91.

SCHEDULE OF BONDS AND STOCKS OF THE PORTSMOUTH TRUST
AND GUARANTY COMPANY.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Little Rock, Mississippi River & Texas.....	\$8,100.00	\$15,000.00	\$8,100.00
Northern Pacific, 6s.....	5,850.00	5,000.00	5,000.00
Mexican Central, 7s.....	6,450.00	5,000.00	2,250.00
Portsmouth, Great Falls & Conway, 4½s.....	41,322.50	40,500.00	40,000.00
	\$61,722.50	\$65,500.00	\$55,350.00
COUNTY.			
Saguache, Col., 7s.....	\$8,961.00	\$8,700.00	\$8,700.00
Gunnison, Col., 8s.....	10,500.00	10,000.00	10,170.00
CITY.			
Davenport, Io., 6s.....	1,300.00	1,000.00	1,000.00
Dover, N. H., 6s.....	654.00	600.00	630.00
TOWNSHIP.			
Irrington, Ind., 6s.....	10,000.00	10,000.00	10,500.00
Danville, Ind., 6s.....	5,000.00	5,000.00	5,150.00
	\$36,415.00	\$35,300.00	\$36,150.00
MISCELLANEOUS.			
Mt. Washington Hotel Co., 8s.....	\$4,400.00	\$4,000.00	\$4,000.00
Kearsarge House, 8s.....	3,885.00	3,885.00	3,885.00
Mexican Central scrip., 10s.....	400.00	562.50	400.00
Little Rock, Mississippi River & Texas scrip.....	1,826.00	2,625.00	1,826.00
	\$10,511.00	\$11,072.50	\$10,111.00
STOCKS.			
BANK.			
Metropolitan National, Boston.....	\$672.00	\$600.00	\$600.00
New Hampshire National, Portsmouth.....	2,000.00	2,000.00	2,200.00
Mechanics & Traders' National, Portsmouth.....	375.00	300.00	375.00
	\$3,047.00	\$2,900.00	\$3,175.00
RAILROAD.			
Portsmouth & Dover.....	\$11,070.00	\$9,000.00	\$9,000.00
Union Pacific.....	3,075.00	5,000.00	2,400.00
Old Colony.....	1,288.00	700.00	1,050.00
	\$15,433.00	\$14,700.00	\$12,450.00

ROCHESTER SAVINGS BANK. — ROCHESTER.

E. J. MATHES, *President*.S. D. WENTWORTH, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$358,565.14		\$358,565.14
Guaranty fund.....	7,192.54		7,192.54
Surplus	14,067.97		14,067.97
Premium on stocks and bonds. . .	1,500.00		
	\$381,325.65		\$379,825 65

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$134,370.00	\$134,370.00	\$134,370.00
Loans secured by local real estate..	101,860.95	101,860.95	101,860.95
Loans on personal security.	90,613.62	90,613.62	90,613.62
Loans on collateral security.....	25,499.51	25,499.51	25,499.51
Bank stock (Farmington Nat. Bank)	11,500.00	10,000.00	10,000.00
Balance on deposit in National Ex- change Bank, Boston.....	578.87	578.87	578.87
Real estate acquired or held by foreclosure.....	14,559.21	14,559.21	14,559.21
Cash on hand.....	2,343.49	2,343.49	2,343.49
	\$381,325.65	\$379,825.65	\$379,825.65

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$21,409.71
Deduct expenses for 1886	\$2,030.33
Deduct state tax for 1886	3,220.60
Deduct items charged off	369.87
	<u>5,620.80</u>
Net profits to be accounted for	\$15,788.91
Dividend of 2 per cent, January, 1886 .	\$5,993.90
Dividend of 2 per cent, July, 1886 . .	6,521.55
Balance of profits for 1886	3,273.46
Net profits (as above) accounted for .	<u>\$15,788.91</u>

Guaranty fund Jan. 1, 1886	\$7,192.54	
Other undivided profits Jan. 1, 1886	15,918.58	
Total surplus profits Jan. 1, 1886	—————	\$23,111.12
Guaranty fund Jan. 1, 1887	\$7,192.54	
Other undivided profits Jan. 1, 1887	19,192.04	
Total surplus profits Jan. 1, 1887	—————	26,384.58
Increase for the year 1886		\$3,273.46

Surplus profits — Jan. 1, 1883, \$16,843.43 ; Jan. 1, 1884, \$17,890.41 ; Jan. 1, 1885, \$18,782.93 ; Jan. 1, 1886, \$23,934.83 ; Jan. 1, 1887, \$26,384.58.

Incorporated 1872. Charter perpetual.

Examination completed Oct. 11, 1886, by George E. Gage.

Vice-President — William Rand.

Trustees, — Edwin J. Mathes, Wm. Rand, I. Salinger, J. T. Dodge, J. S. Parshley, Chas. F. Caverly, Sumner Wallace.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, July 10, 1882. Sureties of bond are able to respond. Bond deposited with E. G. Wallace for safe-keeping.

Annual compensation of treasurer, \$1,000.

Officers have taken their official oath.

Indebtedness of trustees as principal, nothing,; as surety, \$25,525, by unanimous consent of trustees.

Loans and investments are made by the trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,153; increase since last examination by Bank Commissioners, 110.

Amount of deposits, \$358,565.14 ; increase since last examination, \$35,831.67.

Number of single loans of \$1,000 or less to separate parties in the State, 172.

Total amount of loans, \$352,344.08.

Total amount of stocks and bonds, \$10,000.

Largest amount loaned to any individual, corporation, or company, \$20,000.

Amount of assets with interest unpaid for over six months, \$10,810.60.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$242,153.97.

Total amount loaned or invested in New England, \$242,153.97.

Total amount loaned or invested out of New England, \$134,370.

Total amount loaned or invested drawing 4 per cent interest,
\$10,000.

Total amount loaned or invested drawing 6 per cent interest,
\$231,824.08.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$9,000.

Total amount loaned or invested drawing 7 per cent interest,
\$80,970.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$6,200.

Total amount loaned or invested drawing 8 per cent interest,
\$34,250.

Total amount loaned or invested drawing 9 per cent interest,
\$1,200.

Dividends for the year ending Dec. 31, 1886: January, 1886, 2
per cent, \$5,993.90; July, 1886, 2 per cent, \$6,521.55.

No extra dividend declared.

Total expense of institution for the twelve months ending Oct. 11,
1886, \$1,764.78.

Nothing charged off as losses since last examination.

Amount of other taxes, \$138.40.

Amount of deposits received since last examination, \$116,623.80.

Amount of dividends declared since last examination, \$12,515.45.

Amount paid on account of deposits since last examination,
\$93,307.58.

ROLLINSFORD SAVINGS BANK. — SALMON FALLS.

ORANGE S. BROWN, *Pres.*WILLIAM H. MORTON, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$537,315.17	\$537,315.17
Guaranty fund.....	65,227.41	65,227.41
Surplus	25,000.00	25,000.00
Premium on stocks and bonds	43,750.00	
	<u>\$671,292.58</u>	<u>\$627,542.58</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$145,510.00	\$145,510.00	\$145,510.00
Loans secured by local real estate.	49,035.00	49,035.00	49,035.00
Loans on personal security.....	25,700.00	25,700.00	25,700.00
Loans on personal security (West- ern)	39,398.32	39,398.32	39,398.32
Loans on collateral security	12,550.00	12,550.00	12,550.00
County, city, town, and district bonds.....	145,240.00	143,300.00	136,550.00
Railroad bonds.....	52,790.00	55,000.00	50,000.00
Bank stock.....	74,090.00	51,200.00	50,420.00
Miscellaneous bonds	55,700.00	55,700.00	47,100.00
Balance on deposit in Salmon Falls Bank.....	3,731.60	3,731.60	3,731.60
Real estate acquired or held by foreclosure.....	67,547.66	67,547.66	67,547.66
	<u>\$671,292.58</u>	<u>\$648,672.58</u>	<u>\$627,542.58</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$45,087.13
Deduct expenses for 1886	\$2,193.00
Deduct state tax for 1886	4,495.37
Deduct items charged off	4,685.79
	<u>11,374.16</u>
Net profits to be accounted for	\$33,712.97
Dividend of 2 per cent, January, 1886 . .	\$9,877.40
Dividend of 2 per cent, July, 1886 . . .	10,087.82
Balance of profits for 1886	13,747.75
Net profits (as above) accounted for . .	<u>\$33,712.97</u>

Guaranty fund Jan. 1, 1886 . . .	\$25,000.00	
Other undivided profits Jan. 1, 1886 .	59,562.13	
Total surplus profits Jan. 1, 1886 .	—————	\$84,562.13
Guaranty fund Jan. 1, 1887 . . .	\$25,000.00	
Other undivided profits Jan. 1, 1887 .	73,309.88	
Total surplus profits Jan. 1, 1887 .	—————	98,309.88
<hr/>		
Increase for the year 1886		\$13,747.75

Surplus profits — Jan. 1, 1883, \$52,892.84; Jan. 1, 1884, \$74,092.84; Jan. 1, 1885, \$84,898.16; Jan. 1, 1886, \$84,562.13; Jan. 1, 1887, \$98,309.88.

Incorporated 1850. Charter perpetual.

Examination completed Oct. 13, 1886, by Geo. E. Gage.

Vice-Presidents — R. C. Fernald, C. F. Wood.

Trustees — O. S. Brown, R. C. Fernald, C. F. Wood, J. Q. A. Wentworth, J. D. Roberts, G. H. Yeaton, J. M. Brown, E. A. Stevens, A. R. Potter.

Treasurer's bond \$50,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 2, 1875. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — C. F. Wood.

Annual compensation of treasurer, \$2,000.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 1,478; increase since last examination by Bank Commissioners, 29.

Amount of deposits, \$537,315.17; increase since last examination, \$28,981.05.

Number of single loans of \$1,000 or less to separate parties in the State, 32.

Total amount of loans, \$291,893.22.

Total amount of stocks and bonds, \$264,370.

Largest amount loaned to any individual, corporation, or company, \$12,000.

Amount of assets with interest unpaid for over six months, \$30,550.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$212,852.66.

Total amount loaned or invested in New England, \$212,852.66.

Total amount loaned or invested out of New England, \$410,958.32.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest, \$10,000.

Total amount loaned or invested drawing 5 per cent interest, \$10,000.

Total amount loaned or invested drawing 6 per cent interest, \$171,785.

Total amount loaned or invested drawing 7 per cent interest, \$221,785.

Total amount loaned or invested drawing 8 per cent interest, \$129,023.32.

Total amount loaned or invested drawing 10 per cent interest, \$28,400.

Amount invested from which no income has been received during the year, \$75,947.66.

Dividends for the year ending Dec. 31, 1886 : January, 1886, 2 per cent, \$9,877.40 ; July, 1886, 2 per cent, \$10,087.82.

No extra dividend declared.

Total expense of institution for the twelve months ending Oct. 13, 1886, \$2,251.40.

Nothing charged off as losses since last examination.

Amount of other taxes, \$1,312.16.

Amount of deposits received since last examination, \$19,965.22.

Amount of dividends declared since last examination, \$51,912.11.

Amount paid on account of deposits since last examination, \$42,896.27.

SCHEDULE OF BONDS AND STOCKS OF THE ROLLINSFORD SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Cincinnati & Indiana, 7s.....	\$8,880.00	\$8,000.00	\$8,000.00
Portsmouth, Great Falls & Conway, 4½s.....	10,450.00	10,000.00	10,000.00
Des Moines, Osceola & Southern, 7s	5,000.00	10,000.00	5,000.00
Toledo, Peoria & Western, 7s.....	12,960.00	12,000.00	12,000.00
Chicago, Burlington & Quincy, 7s..	13,000.00	10,000.00	10,000.00
Des Moines, Osceola & Southern, 7s	2,500.00	5,000.00	5,000.00
	\$52,790.00	\$55,000.00	\$50,000.00
COUNTY.			
Knox, Mo., 7s.....	\$2,000.00	\$5,000.00	\$1,500.00
Howard, Mo., 6s.....	6,000.00	6,000.00	6,000.00
Jasper, Ill., 7s.....	5,000.00	5,000.00	5,000.00
Pueblo, Col., 6s.....	5,000.00	5,000.00	5,000.00
Adams, Ill., 6s.....	12,000.00	12,000.00	12,000.00
	\$30,000.00	\$33,000.00	\$29,500.00
CITY.			
Litchfield, Ill., 10s.....	\$4,000.00	\$4,000.00	\$2,000.00
East St. Louis, Ill., 10s.....	11,700.00	13,000.00	9,750.00
Goshen, Ind., 7s.....	6,000.00	6,000.00	6,000.00
Goshen, Ind., 7s.....	2,000.00	2,000.00	2,000.00
Kansas City, Mo., 8s.....	15,000.00	15,000.00	15,000.00
Pueblo, Col., 8s.....	5,000.00	5,000.00	5,000.00
St. Louis, Mo., 6s.....	3,690.00	3,000.00	3,000.00
Cincinnati, O., 7s.....	21,400.00	20,000.00	20,000.00
Sedalia, Mo., 7s.....	5,000.00	5,000.00	5,000.00
Sedalia, Mo., 5s.....	9,800.00	10,000.00	10,000.00
Louisville, Mo., 7s.....	11,500.00	10,000.00	10,000.00
Grand Rapids, Mich., 8s.....	5,850.00	5,000.00	5,000.00
	\$100,940.00	\$98,000.00	\$92,750.00
SCHOOL DISTRICT.			
Knobnoster, Mo., 8s.....	\$5,300.00	\$5,300.00	\$5,300.00
Irvington, Ind., 6s.....	4,000.00	4,000.00	4,000.00
Auburn, Ind., 8s.....	5,000.00	5,000.00	5,000.00
	\$14,300.00	\$14,300.00	\$14,300.00
MISCELLANEOUS.			
National Water-works, Kan., 6s....	\$9,800.00	\$10,000.00	\$10,000.00
Pecos Land and Cattle Co., Tex., 7s	5,000.00	5,000.00	5,000.00
Licking River Lumber Co., Ky., 7s.	5,000.00	5,000.00	600.00
Lexington Water Co., Ky., 6s.....	5,250.00	5,000.00	5,000.00
Des Moines Land Co., Io., 7s.....	5,000.00	5,000.00	5,000.00
Iowa Loan and Trust Co., 6s.....	9,700.00	9,700.00	9,700.00
Cleveland & Newburg Horse Railroad, O.....	6,000.00	6,000.00	1,800.00
Halifax Street Railway, N. S., 6s....	10,000.00	10,000.00	10,000.00
	\$55,750.00	\$55,700.00	\$47,100.00
STOCKS.			
BANK.			
Cochecho National, Dover, N. H.....	\$8,190.00	\$7,800.00	\$7,020.00
East Denver, Col.....	2,400.00	2,400.00	2,400.00
<i>Amount carried forward.....</i>	\$10,590.00	\$10,200.00	\$9,420.00

SCHEDULE OF BONDS AND STOCKS OF THE ROLLINSFORD SAVINGS
BANK. — *Continued.*

STOCKS.	Market Value.	Par Value.	Value on Books.
<i>BANK. — Continued.</i>			
<i>Amount brought forward.....</i>	\$10,590.00	\$10,200.00	\$9,420.00
Somersworth, Great Falls, N. H.	6,000.00	4,000.00	4,000.00
National State Capital, Concord....	21,000.00	12,000.00	12,000.00
Great Falls, Great Falls, N. H.	14,400.00	9,600.00	9,600.00
First National, Manchester, N. H. ...	5,000.00	4,000.00	4,000.00
Salmon Falls State, Salmon Falls, N. H.	17,100.00	11,400.00	11,400.00
	\$74,090.00	\$51,200.00	\$50,420.00

SANDWICH SAVINGS BANK.—SANDWICH.

M. H. MARSTON, *President*.WM. A. HEARD, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$75,156.18		\$75,156.18
Guaranty fund.....	1,526.16		1,526.16
Surplus.....	1,877.75		1,877.75
	\$78,560.09		
Premium on stocks and bonds, im- paired.....	5,572.95		
	\$72,987.14		\$78,560.09

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$25,550.00	\$25,550.00	\$25,550.00
Loans secured by Western city mortgages.....	7,600.00	7,600.00	7,600.00
Loans secured by local real estate.	965.50	965.50	965.50
Loans on personal security.....	647.25	647.25	647.25
County, city, town, and district bonds.....	20,080.00	20,100.00	19,178.95
Railroad bonds.....	4,610.00	11,400.00	11,235.00
Railroad stock.....	3,226.00	3,490.00	3,155.00
Miscellaneous bonds.....	4,645.00	4,500.00	4,565.00
Balance on deposit in Maverick National Bank, Boston.....	2,257.06	2,257.06	2,257.06
Real estate acquired or held by foreclosure.....	2,873.40	2,873.40	2,873.40
Bank fixtures.....	350.00	350.00	350.00
Cash on hand.....	182.93	182.93	182.93
	\$72,987.14	\$78,916.14	\$78,560.09

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$4,930.76
Deduct expenses for 1886	\$486.46
Deduct state tax for 1886	721.00
Deduct items charged off	1,278.50
	<hr/> 2,485.96
Net profits to be accounted for	<hr/> \$2,444.80

Dividend of 2 per cent, April, 1886 . . .	\$1,416.98	
Dividend of 2 per cent, October, 1886 . . .	1,435.52	
	<hr/>	\$2,852.50
Decrease (as above) accounted for		<hr/> \$407.70
Guaranty fund Jan. 1, 1886	\$1,526.16	
Other undivided profits Jan. 1, 1886 . . .	381.25	
Total surplus profits Jan. 1, 1886 . . .	<hr/>	\$1,907.41
Guaranty fund Jan. 1, 1887	\$1,526.16	
Total surplus profits Jan. 1, 1887		<hr/> 1,499.71
Decrease for the year 1886		<hr/> \$407.70
Surplus profits — Jan. 1, 1883, \$506.83 ; Jan. 1, 1884, \$464.57 ; Jan. 1, 1885, \$1,351.96 ; Jan. 1, 1886, \$1,907.41 ; Jan. 1, 1887, \$1,499.71.		

Incorporated 1872. Charter perpetual.

Examination completed Oct. 20, 1886, by George E. Gage.

Trustees — M. H. Marston, W. A. Heard, E. Q. Fellows, D. H. Hill, Charles Blanchard, Gilman Moulton, C. W. Donovan, Samuel Chase, Elisha Marston, C. C. Fellows, C. M. Quimby, S. B. Wiggin, S. H. Dorr.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, June 10, 1881. Sureties of bond are able to respond. Bond deposited with Charles Blanchard for safe-keeping.

Clerk — E. M. Heard.

Annual compensation of treasurer, \$300.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$226 ; as surety, \$96.25, by unanimous consent of trustees.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Number of depositors, 313 ; decrease since last examination by Bank Commissioners, 9.

Amount of deposits, \$75,156.18 ; decrease since last examination, \$4,215.94.

Amount of bank's assets in Boston for safe-keeping, \$36,000.

Number of single loans of \$1,000 or less to separate parties in the State, 14.

Total amount of loans, \$34,762.75.

Total amount of stocks and bonds, \$38,133.95.

Largest amount loaned to any individual, corporation, or company, \$6,000.

Amount of assets with interest unpaid for over six months, \$2,270.75.
The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$4,836.21.

Total amount loaned or invested in New England, \$6,086.21.

Total amount loaned or invested out of New England, \$70,390.

Total amount loaned or invested drawing $3\frac{1}{2}$ per cent interest,
\$2,000.

Total amount loaned or invested drawing 6 per cent interest,
\$26,997.75.

Total amount loaned or invested drawing 7 per cent interest,
\$34,050.

Total amount loaned or invested drawing 8 per cent interest,
\$1,500.

Total amount loaned or invested drawing 10 per cent interest,
\$3,600.

Amount invested from which no income has been received during
the year, \$7,863.40.

Dividends for the year ending Dec. 31, 1886: April, 1886, 2 per
cent, \$1,416.98; October, 1886, 2 per cent, \$1,435.52.

Total expense of institution for the twelve months ending Oct.
20, 1886, \$445.05.

Amount charged off as losses since last examination, \$1,278.50.

Amount of other taxes, \$34.40.

Amount of deposits received since last examination, \$16,942.18.

Amount of dividends declared since last examination, \$2,855.52.

Amount paid on account of deposits since last examination,
\$24,013.64.

SCHEDULE OF BONDS AND STOCKS OF THE SANDWICH SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Cincinnati Northern, 6s.....	\$1,200.00	\$3,000.00	\$2,940.00
Toledo, Delphos & Burlington, 6s...		2,000.00	1,865.00
Toledo, Delphos & Burlington, 7s...		2,000.00	2,040.00
Northern Pacific, 6s.....	1,160.00	1,000.00	990.00
Terre Haute & Southeastern, 7s.....	1,100.00	1,000.00	1,000.00
Texas & New Orleans, 6s.....	1,150.00	1,000.00	1,000.00
Toledo, Cincinnati & St. Louis scrip			
Toledo, Cincinnati & St. Louis deb.		1,400.00	1,400.00
Southeastern Division Cincinnati & St. Louis (assessment scrip).....			
	\$4,610.00	\$11,400.00	\$11,235.00
COUNTY.			
Paulding, Ill., 6s.....	\$1,000.00	\$1,000.00	\$1,000.00
Lancaster, Neb., 10s.....	3,780.00	3,600.00	3,570.00
	\$4,780.00	\$4,600.00	\$4,570.00
CITY.			
Muscatine, Io., 6s.....	\$5,500.00	\$5,500.00	\$4,798.95
Evansville, Ind., 3½s.....	1,500.00	2,000.00	1,895.00
Peoria, Ill., 7s.....	2,300.00	2,000.00	1,915.00
Tiffin, O., 6s.....	5,000.00	5,000.00	5,000.00
	\$14,300.00	\$14,500.00	\$13,608.95
TOWNSHIP.			
Albany, N. H., 6s.....	\$1,000.00	\$1,000.00	\$1,000.00
MISCELLANEOUS.			
Gardner Water-works, 6s.....	\$2,100.00	\$2,000.00	\$2,000.00
Galesburg " 6s.....	1,000.00	1,000.00	1,100.00
Knoxville " 6s.....	1,020.00	1,000.00	1,000.00
Pueblo " Col., 8s.....	525.00	500.00	465.00
	\$4,645.00	\$4,500.00	\$4,565.00
STOCKS.			
RAILROAD.			
Dayton & Ironton.....	\$960.00	\$2,200.00	\$2,065.00
Dayton & Ironton.....	16.00	40.00	40.00
Boston Equipment Co.....	1,250.00	1,250.00	1,050.00
	\$3,226.00	\$3,490.00	\$3,155.00

SAVINGS BANK FOR THE COUNTY OF STRAFFORD. —
DOVER.ALBERT O. MATHES, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$3,199,662.46		\$3,199,662.46
Guaranty fund	134,189.75		134,189.75
Surplus.....	41,347.50		41,347.50
Premium on stocks and bonds.....	384,195.16		
	\$3,759,394.87		\$3,375,199.71

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by local real estate.	\$330,598.27	\$330,598.27	\$330,598.27
Loans on personal security.....	128,932.00	128,932.00	128,932.00
Loans on collateral security.....	77,166.97	77,166.97	77,166.97
County, city, town, and district bonds.....	1,489,085.00	1,370,000.00	1,373,783.00
Railroad bonds.....	1,453,995.00	1,251,000.00	1,305,263.75
Railroad stock.....	186,048.00	89,100.00	79,386.09
Bank stock.....	26,250.00	15,000.00	15,000.00
Miscellaneous bonds.....	37,500.00	36,000.00	35,250.00
Balance on deposit in Strafford National Bank.....	14,024.82	14,024.82	14,024.82
Real estate acquired or held by foreclosure.....	15,638.96	15,638.96	15,638.96
Cash on hand.....	155.85	155.85	155.85
	\$3,759,394.87	\$3,327,616.87	\$3,375,199.71

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$207,629.10
Deduct expenses for 1886	\$5,661.96
Deduct state tax for 1886	30,143.52
Deduct items charged off	11,935.58
	<u>47,741.06</u>
Net profits to be accounted for	\$159,888.04
Dividend of 1½ per cent, January, 1886	\$42,844.66
Dividend of 1½ per cent, July, 1886	44,667.79
Extra dividend April, 1886	52,339.46

Carried to guaranty fund . . .	\$10,263.50
Balance of profits for 1886 . . .	9,772.63

Net profits (as above) accounted for . . .	\$159,888.04
Guaranty fund Jan. 1, 1886 . . .	\$121,322.50
Other undivided profits Jan. 1, 1886 . . .	89,978.15
Total surplus profits Jan. 1, 1886 . . .	\$211,300.65
Guaranty fund Jan. 1, 1887 . . .	\$144,439.75
Other undivided profits Jan. 1, 1887 . . .	86,297.46
Total surplus profits Jan. 1, 1887 . . .	230,737.21
Increase for the year 1886 . . .	\$19,436.56

Surplus profits — Jan. 1, 1883, \$147,788.12 ; Jan. 1, 1884, \$212,485.57 ; Jan. 1, 1885, \$110,074.38 ; Jan. 1, 1886, \$211,300.65 ; Jan. 1, 1887, \$230,737.21.

Incorporated 1823. Charter perpetual.

Examination completed Nov. 30, 1886, by George E. Gage.

Vice-Presidents — C. W. Woodman, Charles H. Sawyer.

Trustees — C. W. Woodman, Chas. H. Sawyer, William S. Stevens, Jeremiah Horne, Samuel C. Fisher, E. R. Brown, John H. Hurd, John Holland, Benjamin F. Nealley.

Treasurer's bond \$130,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, July 28, 1881. Sureties of bond are able to respond. Bond deposited in Strafford National Bank for safe-keeping.

Clerk — George F. Piper.

Annual compensation of treasurer, \$2,000.

Annual compensation of clerk, \$1,500.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$50,996.97 ; as surety, \$600, by unanimous consent of trustees.

Loans and investments are made by committee of investment.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 6,956 ; increase since last examination by Bank Commissioners, 406.

Amount of deposits, \$3,199,662.46 ; increase since last examination, \$255,754.76.

Number of single loans of \$1,000 or less to separate parties in the State, 278.

Total amount of loans, \$536,697.24.

Total amount of stocks and bonds, \$2,808,682.84.

Largest amount loaned to any individual, corporation, or company, \$50,996.97.

Amount of assets with interest unpaid for over six months,
\$25,650.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$802,857.14.

Total amount loaned or invested in New England, \$1,198,772.29.

Total amount loaned or invested out of New England, \$2,162,246.75.

Total amount loaned or invested drawing 4 per cent interest,
\$194,000.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest,
\$332,000.

Total amount loaned or invested drawing 5 per cent interest,
\$620,996.97.

Total amount loaned or invested drawing 6 per cent interest,
\$1,137,339.23.

Total amount loaned or invested drawing 7 per cent interest,
\$878,000.

Total amount loaned or invested drawing 8 per cent interest,
\$86,000.

Total amount loaned or invested drawing 9 per cent interest,
\$50,100.

Total amount loaned or invested drawing 10 per cent interest,
\$15,000.

Dividends for the year ending Dec. 31, 1886: Jan. 1, 1886, $1\frac{1}{2}$
per cent, \$42,844.66; July, 1886, $1\frac{1}{2}$ per cent, \$44,667.79.

Extra dividend, amounting to \$52,339.46, declared April, 1886.

Total expense of institution for the twelve months ending Nov.
30, 1886, \$5,661.96.

Nothing charged off as losses since last examination.

Amount of other taxes, nothing.

Amount of deposits received since last examination, \$501,429.74.

Amount of dividends declared since last examination, \$139,851.91.

Amount paid on account of deposits since last examination,
\$385,526.89.

SCHEDULE OF BONDS AND STOCKS OF THE SAVINGS BANK FOR
THE COUNTY OF STRAFFORD.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Boston & Maine, 7s.....	\$116,500.00	\$100,000.00	\$105,000.00
Boston & Providence, 7s.....	116,500.00	100,000.00	104,750.00
Old Colony & Newport, 6s.....	77,675.00	65,000.00	67,268.75
New York & New England, 6s.....	35,100.00	30,000.00	30,000.00
New York & New England, 7s.....	25,400.00	20,000.00	20,000.00
Chicago & Northwestern, 6s.....	30,000.00	25,000.00	26,218.75
Chicago & Northwestern, 5s.....	55,250.00	50,000.00	49,812.50
Philadelphia, Wilmington & Baltimore, 5s.....	27,250.00	25,000.00	26,187.50
Northern Pacific, 6s.....	140,400.00	120,000.00	120,000.00
Pueblo & Arkansas, 7s.....	124,000.00	100,000.00	114,935.00
Atlantic & Pacific, 6s.....	12,400.00	10,000.00	10,000.00
Chicago, Burlington & Quincy, 5s..	23,000.00	20,000.00	21,350.00
Kansas City & Emporia, 7s.....	13,640.00	11,000.00	11,000.00
Cowley, Sumner & Fort Smith, 7s..	6,100.00	5,000.00	5,000.00
Marion & McPherson, 7s.....	7,440.00	6,000.00	6,000.00
Union Pacific, 6s.....	140,440.00	120,000.00	124,900.00
Union Pacific, 8s.....	45,600.00	40,000.00	46,000.00
Chicago, Milwaukee & St. Paul, 7s..	106,075.00	85,000.00	94,537.50
Kalamazoo & White Pigeon, 7s....	17,850.00	17,000.00	17,000.00
New Mexico & Southern Pacific, 7s.	31,500.00	25,000.00	28,356.25
Maine Central, 6s.....	57,500.00	50,000.00	50,000.00
Boston & Maine, 4½s.....	162,000.00	150,000.00	150,000.00
Chicago & Great Western, 5s.....	21,525.00	21,000.00	20,947.50
Chicago & Rock Island, 5s.....	54,250.00	50,000.00	50,000.00
Maine Central, 5s.....	6,600.00	6,000.00	6,000.00
	\$1,453,995.00	\$1,251,000.00	\$1,305,263.75
COUNTY.			
Cook, Ill., 7s.....	\$33,300.00	\$30,000.00	\$34,500.00
Cook, Ill., 5s.....	27,250.00	25,000.00	25,000.00
Cook, Ill., 4s.....	72,100.00	70,000.00	70,000.00
	\$132,650.00	\$125,000.00	\$129,500.00
CITY.			
Dover, N. H., 6s.....	\$109,000.00	\$100,000.00	\$98,000.00
Cleveland, O., 7s.....	118,000.00	100,000.00	104,290.50
Chicago, Ill., 7s.....	114,450.00	109,000.00	108,077.50
Cincinnati, O., 7s.....	177,000.00	150,000.00	151,062.50
Minneapolis, Minn., 4½s.....	125,820.00	122,000.00	122,000.00
St. Louis, Mo., 6s.....	34,100.00	31,000.00	33,480.00
St. Louis, Mo., 4s.....	70,380.00	69,000.00	69,000.00
Toledo, O., 8s.....	25,300.00	22,000.00	21,666.25
Toledo, O., 5s.....	106,400.00	99,000.00	99,000.00
Cleveland, O., 5s.....	110,000.00	100,000.00	100,000.00
Omaha, Neb., 6s.....	52,530.00	51,000.00	51,000.00
Omaha, Neb., 5s.....	27,875.00	25,000.00	25,000.00
Lansing, Mich., 4½s.....	31,500.00	30,000.00	30,000.00
St. Paul, Minn., 5s.....	104,500.00	95,000.00	95,000.00
St. Paul, Minn., 4s.....	56,650.00	55,000.00	49,706.25
Toledo, O., 4½s.....	19,760.00	19,000.00	19,000.00
Haverhill, Mass., 7s.....	22,400.00	20,000.00	20,000.00
Topeka, Kan., 5s.....	14,000.00	14,000.00	14,000.00
Leavenworth, Kan., 6s.....	8,640.00	8,000.00	8,000.00
Zanesville, O., 4½s.....	11,330.00	11,000.00	11,000.00
	\$1,339,635.00	\$1,230,000.00	\$1,229,283.00
TOWNSHIP.			
Danville, Ill., 5s.....	\$16,800.00	\$15,000.00	\$15,000.00

SCHEDULE OF BONDS AND STOCKS OF THE SAVINGS BANK FOR
THE COUNTY OF STRAFFORD. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
Cambridge Horse Railroad, 5s.....	\$26,500.00	\$25,000.00	\$25,000.00
Municipal Gas-light Co., Rochester, N. Y., 6s.....	11,000.00	11,000.00	10,250.00
	\$37,500.00	\$36,000.00	\$35,250.00
STOCKS.			
BANK.			
Strafford National, Dover, N. H.....	\$26,250.00	\$15,000.00	\$15,000.00
RAILROAD.			
Boston & Maine.....	\$116,733.00	\$50,100.00	\$51,689.49
Boston & Albany.....	50,040.00	24,000.00	22,865.15
Northern, N. H.....	19,275.00	15,000.00	4,831.45
	\$186,048.00	\$89,100.00	\$79,386.09

SECURITY SAVINGS BANK. — WINCHESTER.

ANSEL DICKINSON, *Pres.*J. GRACE ALEXANDER, *Treas.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$161,504.79		\$161,504.79
Guaranty fund.....	2,625.00		2,625.00
Surplus.....	4,523.44		4,523.44
Premium on stocks and bonds.....	1,555.00		
	\$170,208.23		\$168,653.23

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages....	\$78,650.00	\$78,650.00	\$78,650.00
Loans secured by local real estate.	42,347.08	42,347.08	42,347.08
Loans on personal security.....	8,723.90	8,723.90	8,723.90
Loans on collateral security.....	9,800.00	9,800.00	9,800.00
County, city, town, and district bonds.....	10,610.00	9,710.00	9,710.00
Bank stock.....	7,370.00	6,700.00	7,370.00
Miscellaneous bonds.....	7,400.00	7,000.00	7,000.00
Miscellaneous stocks.....	2,755.00	2,500.00	2,500.00
Balance on deposit in Winchester National Bank.....	152.25	152.25	152.25
Real estate acquired or held by foreclosure.....	2,400.00	2,400.00	2,400.00
	\$170,208.23	\$167,983.23	\$168,653.23

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$10,399.83
Deduct expenses for 1886	\$576.86
Deduct state tax for 1886	1,297.29
	<u>1,874.15</u>
Net profits to be accounted for	\$8,525.68
Dividend of 2½ per cent, April 1, 1886	\$3,065.42
Dividend of 2½ per cent, Oct. 1, 1886	3,445.34
Carried to guaranty fund	750.00
Balance of profits for 1886	1,264.92
Net profits (as above) accounted for	<u>\$8,525.68</u>

Guaranty fund Jan. 1, 1886	\$1,875.00	
Other undivided profits Jan. 1, 1886	2,051.45	
Total surplus profits Jan. 1, 1886	<u> </u>	\$3,926.45
Guaranty fund Jan. 1, 1887	\$2,625.00	
Other undivided profits Jan. 1, 1887	3,316.37	
Total surplus profits Jan. 1, 1887	<u> </u>	5,941.37

Increase for the year 1886 \$2,014.92

Surplus profits — Jan. 1, 1883, \$846.54; Jan. 1, 1884, \$2,097.39;
Jan. 1, 1885, \$3,029.03; Jan. 1, 1886, \$3,926.45; Jan. 1, 1887,
\$5,941.37.

Incorporated 1881. Charter perpetual.

Examination completed Jan. 19, 1887, by Chas. E. Cooper.

Vice-President — E. M. Forbes.

Trustees — Ansel Dickinson, Henry Abbott, D. T. Saben, E. S. Adams, Leason Martin, E. M. Forbes, D. L. C. Ball, A. A. Ware, H. B. Swan, A. M. Howard, D. S. Swan, F. P. Willis, A. A. Putnam.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 12, 1887. Sureties of bond are able to respond. Bond deposited with vice-president for safe-keeping.

Clerk — H. Abbott.

Annual compensation of treasurer, \$400.

Annual compensation of clerk, nothing.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$4,825; as surety, \$1,000, by unanimous consent of trustees.

Loans and investments are made by A. Dickinson, H. B. Swan, A. M. Howard, E. S. Adams, D. S. Swan.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 721; increase since last examination by Bank Commissioners, 90.

Amount of deposits, \$161,504.79; increase since last examination, \$32,786.01.

Number of single loans of \$1,000 or less to separate parties in the State, 79.

Total amount of loans, \$139,520.98.

Total amount of stocks and bonds, \$26,580.

Largest amount loaned to any individual, corporation, or company, \$7,000.

Amount of assets with interest unpaid for over six months, \$575.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$72,240.98.

Total amount loaned or invested in New England, \$72,240.98.

Total amount loaned or invested out of New England, \$96,260.

Total amount loaned or invested drawing 6 per cent interest, \$69,770.98.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest, \$1,400.

Total amount loaned or invested drawing 7 per cent interest, \$48,700.

Total amount loaned or invested drawing 8 per cent interest, \$44,160.

Total amount loaned or invested drawing 10 per cent interest, \$1,400.

Dividends for the year ending Dec. 31, 1886: April 1, 1886, $2\frac{1}{2}$ per cent, \$3,065.42; Oct. 1, 1886, $2\frac{1}{2}$ per cent, \$3,445.34.

No extra dividend declared.

Total expense of institution for the twelve months ending Jan. 19, 1887, \$576.86.

Nothing charged off as losses since last examination.

Amount of other taxes, \$46.61.

Amount of deposits received since last examination, \$47,273.57.

Amount of dividends declared since last examination, \$6,510.76.

Amount paid on account of deposits since last examination, \$20,998.32.

SCHEDULE OF BONDS AND STOCKS OF THE SECURITY SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
COUNTY.			
Bingham, Id., 7s.....	\$5,600.00	\$5,000.00	\$5,000.00
SCHOOL DISTRICT.			
Lawrence County, Dak., 8s.....	\$2,300.00	\$2,000.00	\$2,000.00
Grant " " 8s.....	400.00	400.00	400.00
Kingsbury " " 8s.....	400.00	400.00	400.00
" " 8s.....	600.00	600.00	600.00
Lincoln " " 8s.....	400.00	400.00	400.00
Becker " Minn., 10s.....	500.00	500.00	500.00
York " Neb., 8s.....	410.00	410.00	410.00
	\$5,010.00	\$4,710.00	\$4,710.00
MISCELLANEOUS.			
Brainerd Water Co., Minn., 7s	\$4,400.00	\$4,000.00	\$4,000.00
Texas Loan Agency debentures, Corsicana, Tex., 8s.....	3,000.00	3,000.00	3,000.00
	\$7,400.00	\$7,000.00	\$7,000.00
STOCKS.			
BANK.			
Winchester National.....	\$7,370.00	\$6,700.00	\$7,370.00
MISCELLANEOUS.			
Lombard Investment Co.....	\$1,075.00	\$900.00	\$900.00
New Hampshire Trust Co.....	1,680.00	1,600.00	1,600.00
	\$2,755.00	\$2,500.00	\$2,500.00

SOMERSWORTH SAVINGS BANK. — GREAT FALLS.

ISAAC CHANDLER, *President*. ALBERT A. PERKINS, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$883,873.92		\$883,873.92
Guaranty fund.....	26,000.00		26,000.00
Surplus.....	42,784.54		42,784.54
Premium on stocks and bonds.....	31,430.50		
	\$984,088.96		\$952,658.46

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$54,245.00	\$54,245.00	\$54,245.00
Loans secured by local real estate.....	65,816.50	65,816.50	65,816.50
Loans on personal security.....	82,966.86	82,966.86	82,966.86
Loans on personal security (Western).....	5,000.00	5,000.00	5,000.00
Loans on collateral security.....	30,179.50	30,179.50	30,179.50
State bonds.....	20,300.00	20,000.00	20,000.00
County, city, town, and district bonds.....	401,948.00	387,500.00	387,500.00
Railroad bonds.....	157,072.50	139,650.00	139,650.00
Bank stock.....	66,900.00	46,040.00	46,040.00
Miscellaneous bonds.....	28,750.00	25,000.00	25,000.00
Miscellaneous stocks.....	12,000.00	30,000.00	22,350.00
Balance on deposit in Somersworth and Great Falls National Banks..	4,367.40	4,367.40	4,367.40
Real estate purchased for the bank (bank building).....	45,000.00	60,000.00	60,000.00
Real estate acquired or held by foreclosure.....	8,070.14	8,070.14	8,070.14
Cash on hand.....	1,473.06	1,473.06	1,473.06
	\$984,088.96	\$960,308.46	\$952,658.46

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$53,309.88
Deduct expenses for 1886	\$2,500.00
Deduct state tax for 1886 and other taxes	8,371.00
Deduct items charged off	6,824.38
	<u>17,695.38</u>
Net profits to be accounted for	\$35,614.50

Dividend of 2 per cent, Jan. 1, 1886	.	\$16,088.87	
Dividend of 2 per cent, July 1, 1886	.	16,710.10	
Carried to guaranty fund	.	2,000.00	
Balance of profits for 1886	.	815.53	
Net profits (as above) accounted for	.	—————	\$35,614.50
Guaranty fund Jan. 1, 1886	.	\$26,000.00	
Other undivided profits Jan. 1, 1886	.	48,130.34	
Total surplus profits Jan. 1, 1886	.	—————	\$74,130.34
Guaranty fund Jan. 1, 1887	.	\$28,000.00	
Other undivided profits Jan. 1, 1887	.	48,945.87	
Total surplus profits Jan. 1, 1887	.	—————	76,945.87
<hr/>			
Increase for the year 1886	.	.	\$2,815.53
Surplus profits — Jan. 1, 1883, \$83,339.95; Jan. 1, 1884, \$65,-			
193.49; Jan. 1, 1885, \$68,203.61; Jan. 1, 1886, \$74,132.28;			
Jan. 1, 1887, \$76,945.87.			

Incorporated 1845. Charter perpetual.

Examination completed Nov. 26, 1886, by George E. Gage.

Vice-Presidents — Edward Hargraves, William R. Burleigh.

Trustees — Emery J. Randall, Joseph A. Stickney, Orlando J. Bagley, Noah L. Fall, Thomas G. Jameson, Jesse R. Horne, Henry C. Gilpatrick, and Samuel A. Seavey.

Treasurer's bond \$75,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Nov. 28, 1876. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Angenette Stickney.

Annual compensation of treasurer, \$2,000.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$13,721.21; as surety, \$25,600, by unanimous consent of trustees.

Loans and investments are made by trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 2,970; increase since last examination by Bank Commissioners, 65.

Amount of deposits, \$883,873.92; increase since last examination, \$68,802.44.

Number of single loans of \$1,000 or less to separate parties in the State, 77.

Total amount of loans, \$238,227.86.

Total amount of stocks and bonds, \$618.190.

Largest amount loaned to any individual, corporation, or company, \$20,500.

Amount of assets with interest unpaid for over six months,
\$6,755.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$319,473.46.

Total amount loaned or invested in New England, \$379,473.46.

Total amount loaned or invested out of New England, \$580,835.

Total amount loaned or invested drawing 4 per cent interest,
\$3,000.

Total amount loaned or invested drawing $4\frac{1}{2}$ per cent interest,
\$30,000.

Total amount loaned or invested drawing 5 per cent interest,
\$120,000.

Total amount loaned or invested drawing 6 per cent interest,
\$497,712.86.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$400.

Total amount loaned or invested drawing 7 per cent interest,
\$101,550.

Total amount loaned or invested drawing $7\frac{3}{10}$ per cent interest,
\$5,500.

Total amount loaned or invested drawing 8 per cent interest,
\$30,000.

Total amount loaned or invested drawing 9 per cent interest,
\$38,900.

Total amount loaned or invested drawing 10 per cent interest,
\$28,400.

Amount invested from which no income has been received during
the year, \$31,440.

Dividends for the year ending Dec. 31, 1886: Jan. 1, 1886, 2 per
cent, \$16,088.87; July 1, 1886, 2 per cent, \$16,710.10.

No extra dividend declared.

Total expense of institution for the twelve months ending Nov. 29,
1886, \$6,895.56.

Nothing charged off as losses since last examination.

Amount of other taxes, \$721.38.

Amount of deposits received since last examination, \$173,294.81.

Amount of dividends declared since last examination, \$32,798.97.

Amount paid on account of deposits since last examination,
\$137,291.34.

SCHEDULE OF BONDS AND STOCKS OF THE SOMERSWORTH SAVINGS
BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
STATE.			
Dakota, 5s.....	\$10,000.00	\$10,000.00	\$10,000.00
New Mexico, 7s.....	10,300.00	10,000.00	10,000.00
	\$20,300.00	\$20,000.00	\$20,000.00
RAILROAD.			
Portsmouth, Gt. Falls & Conway, 4½s	\$20,900.00	\$20,000.00	\$20,000.00
Indianapolis, Cincinnati & Lafayette, 7s.....	1,732.50	1,650.00	1,650.00
Northern Pacific, 6s.....	40,950.00	35,000.00	35,000.00
St. Paul & Northern, 6s.....	17,400.00	15,000.00	15,000.00
Cincinnati, Hannibal & Dayton, 6s..	11,800.00	10,000.00	10,000.00
Old Colony, 6s.....	9,240.00	8,000.00	8,000.00
New York & New England, 7s.....	12,700.00	10,000.00	10,000.00
Boston & Lowell, 5s.....	5,550.00	5,000.00	5,000.00
Chicago, Burlington & Quincy, 5s..	11,000.00	10,000.00	10,000.00
Northern Pacific, 6s.....	15,600.00	15,000.00	15,000.00
Atchison, Topeka & Santa Fé, 5s....	10,200.00	10,000.00	10,000.00
	\$157,072.50	\$139,650.00	\$139,650.00
COUNTY.			
Lee, Io., 6s.....	\$9,000.00	\$9,000.00	\$9,000.00
Richland, Ill., 6s.....	10,000.00	10,000.00	10,000.00
Pueblo, Col., 6s.....	15,000.00	15,000.00	15,000.00
Barber, Kan., 6s.....	3,030.00	3,000.00	3,000.00
Buffalo, Neb., 7s.....	600.00	600.00	600.00
Gage, Neb., 7s ..	900.00	900.00	900.00
Phelps, Neb., 7s	8,453.00	7,900.00	7,900.00
	\$46,983.00	\$46,400.00	\$46,400.00
CITY.			
Kansas City, Mo., 8s.....	\$6,250.00	\$5,000.00	\$5,000.00
Boulder, Col., 10s.....	8,640.00	7,200.00	7,200.00
Elizabeth, N. J., 4s.....	2,340.00	3,000.00	3,000.00
Evansville, Ind., 7s.....	7,500.00	10,000.00	10,000.00
Pueblo, Col., 8s.....	10,500.00	10,000.00	10,000.00
Quincy, Ill., 6s.....	5,250.00	5,000.00	5,000.00
St. Louis, Mo., 6s.....	37,800.00	36,000.00	36,000.00
Cincinnati, O., 7s.....	19,500.00	15,000.00	15,000.00
Fall River, Mass., 5s.....	5,950.00	5,000.00	5,000.00
Canton, O., 6s.....	4,000.00	4,000.00	4,000.00
Piqua, O., 6s.....	5,300.00	5,000.00	5,000.00
Jeffersonville, Ind., 7 3-10s.....	5,885.00	5,500.00	5,500.00
Austin, Minn., 6s.	22,000.00	22,000.00	22,000.00
St. Paul, Minn., 5s.....	27,625.00	25,000.00	25,000.00
Minneapolis, Minn., 4½s.....	10,300.00	10,000.00	10,000.00
Red Wing, Minn., 5s.....	10,000.00	10,000.00	10,000.00
Omaha, Neb., 6s.....	20,600.00	20,000.00	20,000.00
Beatrice, Neb., 6s.....	15,000.00	15,000.00	15,000.00
Waterloo, Io., 5s.....	15,000.00	15,000.00	15,000.00
	\$239,440.00	\$227,700.00	\$227,700.00
SCHOOL DISTRICT.			
Emmetsburg, Io., 6s.....	\$3,000.00	\$3,000.00	\$3,000.00
Pueblo, Col., 8s.....	15,750.00	15,000.00	15,000.00
Golden, Col., 10s.....	7,725.00	7,500.00	7,500.00
Amount carried forward.....	\$26,475.00	\$25,500.00	\$25,500.00

SCHEDULE OF BONDS AND STOCKS OF THE SOMERSWORTH SAVINGS
BANK. — *Continued.*

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT. — <i>Continued.</i>			
<i>Amount brought forward</i>	\$26,475.00	\$25,500.00	\$25,500.00
Eaton Rapids, Mich., 10s.....	8,400.00	8,000.00	8,000.00
Denver, Col., 7s.....	25,750.00	25,000.00	25,000.00
El Paso, Col., 6s.....	8,000.00	8,000.00	8,000.00
Shenandoah, Io., 6s.....	5,000.00	5,000.00	5,000.00
Corydon, Io., 6s.....	7,000.00	7,000.00	7,000.00
Earlham, Io., 6s.....	1,500.00	1,500.00	1,500.00
Perry, Io., 6s.....	7,500.00	7,500.00	7,500.00
Glidden, Io., 6s.....	4,900.00	4,900.00	4,900.00
New Sharon, Io., 6s.....	3,000.00	3,000.00	3,000.00
Keosauqua, Io., 6s.....	3,000.00	3,000.00	3,000.00
Lucas, Io., 6s.....	1,500.00	1,500.00	1,500.00
Des Moines, Io., 5s.....	5,000.00	5,000.00	5,000.00
What Cheer, Io., 6s.....	5,000.00	5,000.00	5,000.00
New Market, Io., 6s.....	1,500.00	1,500.00	1,500.00
Somersworth, N. H., 6s.....	2,000.00	2,000.00	2,000.00
	\$115,525.00	\$113,400.00	\$113,400.00
MISCELLANEOUS.			
Cambridge Horse Railroad, 5s.....	\$28,750.00	\$25,000.00	\$25,000.00
STOCKS.			
BANK.			
Great Falls National.....	\$38,550.00	\$25,700.00	\$25,700.00
Somersworth ".....	19,800.00	13,200.00	13,200.00
Exchange " Denver, Col....	000.00	1,440.00	1,440.00
Salmon Falls ".....	8,550.00	5,700.00	5,700.00
	\$66,900.00	\$46,040.00	\$46,040.00
MISCELLANEOUS.			
East Cambridge Land Co.....	\$12,000.00	\$30,000.00	\$22,350.00

SQUAMSCOTT SAVINGS BANK. — EXETER.

GEO. B. WEBSTER, *President*.FRANCIS HILLIARD, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$26,411.19		\$26,411.19
Guaranty fund.....	733.00		733.00
Surplus.....	2,565.19		2,565.19
	<u>\$29,709.38</u>		<u>\$29,709.38</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$3,375.75	\$3,375.75	\$3,375.75
Loans secured by local real estate.	21,610.00	21,610.00	21,610.00
Loans on personal security.....	1,300.00	1,300.00	1,300.00
Loans on collateral security.....	2,200.00	2,200.00	2,200.00
Railroad bonds (Boston & Maine, 7s)	594.37	500.00	619.37
Bank stock (Amesbury National)...	500.00	500.00	475.00
Balance on deposit in Granite State National Bank.....	7.53	7.53	7.53
Cash on hand.....	121.73	121.73	121.73
	<u>\$29,709.38</u>	<u>\$29,615.01</u>	<u>\$29,709.38</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886 . . .	\$1,646.06
Deduct expenses for 1886 . . .	\$125.00
Deduct state tax for 1886 . . .	222.50
	<u>347.50</u>
Net profits to be accounted for . . .	\$1,298.56
Dividend of 2½ per cent, January, 1886 .	\$437.26
Dividend of 2½ per cent, July, 1886 .	527.70
Carried to guaranty fund . . .	31.00
Balance of profits for 1886 . . .	302.60
Net profits (as above) accounted for .	<u>\$1,298.56</u>
Guaranty fund Jan. 1, 1886 . . .	\$702.00
Other undivided profits Jan. 1, 1886 .	1,486.40
Total surplus profits Jan. 1, 1886 .	<u>\$2,188.40</u>

Guaranty fund Jan. 1, 1887	\$733.00	
Other undivided profits Jan. 1, 1887	1,789.00	
Total surplus profits Jan. 1, 1887	<u> </u>	\$2,522.00
		<hr/>
Increase for the year 1886		\$333.60

Surplus profits — Jan. 1, 1886, \$2,188.40 ; Jan. 1, 1887, \$2,522.

Incorporated 1873. Charter perpetual.

Examination completed March 23, 1887, by Chas. E. Cooper.

Vice-President — Thomas Duston.

Trustees — Geo. B. Webster, Thomas Duston, Francis Hilliard, Chas. E. Tuck, Solomon S. Perkins, John D. Lyman, William H. Belknap.

Treasurer's bond \$30,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, October, 1874. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Clerk — Wm. H. Belknap

Annual compensation of treasurer, \$75.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$2,100; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by trustees.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 118; increase since last examination by Bank Commissioners, 42.

Amount of deposits, \$26,411.19; increase since last examination, \$8,149.76.

Number of single loans of \$1,000 or less to separate parties in the State, 66.

Total amount of loans, \$28,485.75.

Total amount of stocks and bonds, \$1,094.37.

Largest amount loaned to any individual, corporation, or company, \$2,200.

Amount of assets with interest unpaid for over six months, none.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$25,110.

Total amount loaned or invested in New England, \$26,204.37.

Total amount loaned or invested out of New England, \$3,375.75.

Total amount loaned or invested drawing 6 per cent interest, \$24,760.

Total amount loaned or invested drawing 7 per cent interest,
\$2,050.

Total amount loaned or invested drawing $7\frac{1}{2}$ per cent interest,
\$2,175.75.

Amount invested from which no income has been received during
the year, \$500.

Dividends for the year ending Dec. 31, 1886: January, 1886,
 $2\frac{1}{2}$ per cent, \$437.26; July, 1886, $2\frac{1}{2}$ per cent, \$527.70.

No extra dividend declared.

Total expense of institution for the twelve months ending March 23,
1887, \$125.

Nothing charged off as losses since last examination.

No other taxes.

Amount of deposits received since last examination, \$11,522.14.

Amount of dividends declared since last examination, \$1,538.56.

Amount paid on account of deposits since last examination,
\$4,910.94.

SULLIVAN SAVINGS INSTITUTION. — CLAREMONT.

DANIEL W. JOHNSON, *President*. JOHN L. FARWELL, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$1,198,546.23		\$1,198,546.23
Guaranty fund.....	60,000.00		60,000.00
Surplus	26,538.73		26,538.73
Premium on stocks and bonds	50,205.35		
	<u>\$1,335,290.31</u>		<u>\$1,285,084.96</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$377,087.90	\$377,087.90	\$377,087.90
Loans secured by Western city mortgages	211,172.00	211,172.00	211,172.00
Loans secured by local real estate.	203,407.26	203,407.26	203,407.26
Loans on personal security.....	44,059.00	44,059.00	44,059.00
Loans on collateral security.....	56,241.91	56,241.91	56,241.91
Railroad bonds.....	269,480.00	266,500.00	235,763.65
Railroad stock.....	47,603.00	72,100.00	41,650.00
Bank stock.....	69,000.00	46,500.00	58,664.00
Miscellaneous bonds.....	28,000.00	30,000.00	27,800.00
Miscellaneous stocks.....	8,300.00	8,300.00	8,300.00
Balance on deposit in Claremont National Bank.....	12,000.00	12,000.00	12,000.00
Real estate purchased for the bank (bank building).....	3,000.00	3,000.00	3,000.00
Real estate acquired or held by foreclosure.....	5,068.00	5,068.00	5,068.00
Cash on hand.....	871.24	871.24	871.24
	<u>\$1,335,290.31</u>	<u>\$1,336,307.31</u>	<u>\$1,285,084.96</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$69,762.63
Deduct expenses for 1886	\$4,062.63
Deduct state tax for 1886	11,103.43
	<u>15,166.06</u>
Net profits to be accounted for	\$54,596.57
Dividend of 5 per cent, Jan. 5, 1886	\$55,306.29
Balance from surplus	709.72
Net profits (as above) accounted for	<u>\$54,596.57</u>

Guaranty fund Jan. 1, 1886	\$60,000.00	
Other undivided profits Jan. 1, 1886	16,158.07	
Total surplus profits Jan. 1, 1886	—————	\$76,158.07
Guaranty fund Jan. 1, 1887	\$60,000.00	
Other undivided profits Jan. 1, 1887	15,448.35	
Total surplus profits Jan. 1, 1887	—————	75,448.35
Decrease for the year 1886		\$709.72

Surplus profits — Jan. 1, 1883, \$67,782.72; Jan. 1, 1884, \$75,149.88; Jan. 1, 1885, \$76,065.64; Jan. 1, 1886, \$76,158.07; Jan. 1, 1887, \$75,448.35.

Incorporated 1838. Charter perpetual.

Examination completed April 18, 1887, by George E. Gage and Chas. E. Cooper.

Vice-Presidents — John L. Farwell, Sumner Putnam.

Trustees — Geo. N. Farwell, John L. Farwell, John P. Rounsevel, Daniel W. Johnson, Henry Patten, Ira Colby, Sumner Putnam, John S. Walker, Wm. E. Tutherly, John M. Whipple, William Breck, W. H. H. Allen, Geo. N. Farwell, 2d, Hosea W. Parker, Timothy B. Rossiter, Edward Ainsworth, Edward J. Tenney, Geo. H. Stowell.

Treasurer's bond \$80,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Feb. 5, 1887. Sureties of bond are able to respond. Bond deposited with bank president for safe-keeping.

Clerk — Charles H. Clark.

Annual compensation of treasurer, \$3,000.

Annual compensation of clerk paid by treasurer.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$9,000; as surety, nothing, by unanimous consent of trustees.

Loans and investments are made by loaning committee; no regular meeting.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 2,921; increase since last examination by Bank Commissioners, 57.

Amount of deposits, \$1,198,546.23; increase since last examination, \$66,781.81.

Number of single loans of \$1,000 or less to separate parties in the State, 155.

Total amount of loans, \$891,968.07.

Total amount of stocks and bonds, \$372,177.65.

Largest amount loaned to any individual, corporation, or company, \$30,000.

Amount of assets with interest unpaid for over six months:

Bonds, \$56,500; notes, \$5,458.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$365,440.17.

Total amount loaned or invested in New England, \$370,440.17.

Total amount loaned or invested out of New England, \$901,773.55.

Total amount loaned or invested drawing 5 per cent interest, \$140,000.

Total amount loaned or invested drawing 6 per cent interest, \$432,608.17.

Total amount loaned or invested drawing 7 per cent interest, \$319,837.90.

Total amount loaned or invested drawing 8 per cent interest, \$320,372.

Total amount loaned or invested drawing 9 per cent interest, \$4,550.

Total amount loaned or invested drawing 10 per cent interest, \$58,000.

Amount invested from which no income has been received during the year, \$56,950.

Dividends for the year ending Dec. 31, 1886: Jan. 5, 1886, \$55,306.29.

No extra dividend declared.

Total expense of institution for the twelve months ending April 18, 1887, \$3,895.47.

Nothing charged off as losses since last examination.

Amount of other taxes, \$78.60.

Amount of deposits received since last examination, \$170,411.10.

Amount of dividends declared since last examination, \$55,306.29.

Amount paid on account of deposits since last examination, \$158,935.58.

SCHEDULE OF BONDS AND STOCKS OF THE SULLIVAN SAVINGS
INSTITUTION.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Indiana, Bloomington & Western (Eastern Division), 5s.....	\$33,600.00	\$35,000.00	\$35,000.00
Indiana, Bloomington & Western (first mortgage), 5s.....	33,250.00	35,000.00	21,400.00
Memphis & Little Rock, 8s.....	6,000.00	5,000.00	5,363.65
Memphis & Little Rock (first mort- gage), 8s.....	58,205.00	51,500.00	49,500.00
Central Iowa (first mortgage), 7s...	22,875.00	25,000.00	25,000.00
Central Iowa (Eastern Division), 6s	3,500.00	5,000.00	5,000.00
Midland of New Jersey, 6s.....	45,200.00	40,000.00	36,000.00
New York & Manhattan Beach, 7s..	10,600.00	10,000.00	10,000.00
Cœur d'Alene Ry. and Nav. Co., 6s..	10,000.00	10,000.00	9,000.00
New York, Susquehanna & West- ern, 5s.....	46,250.00	50,000.00	39,500.00
	\$269,480.00	\$266,500.00	\$235,763.65
MISCELLANEOUS.			
Lackawanna & Susquehanna Coal, 6s.....	\$9,000.00	\$10,000.00	\$7,700.00
Manhattan Beach Improve't Co., 7s	9,000.00	10,000.00	10,000.00
Presidio Live-stock Co., 6s ..	10,000.00	10,000.00	10,100.00
	\$28,000.00	\$30,000.00	\$27,800.00
STOCKS.			
BANK.			
Claremont National.....	\$61,050.00	\$40,700.00	\$52,664.00
National Bank of Redemp'n, Boston	6,850.00	5,000.00	5,000.00
First National, Newport.....	1,120.00	800.00	1,000.00
	\$69,020.00	\$46,500.00	\$58,664.00
RAILROAD.			
Chicago & Alton.....	\$17,303.00	\$12,100.00	\$12,100.00
Flint & Pere Marquette.....	19,300.00	20,000.00	16,750.00
Indiana, Bloomington & Western..	11,000.00	40,000.00	12,800.00
	\$47,603.00	\$72,100.00	\$41,650.00
MISCELLANEOUS.			
The Land and Security Invest. Co..	\$8,300.00	\$8,300.00	\$8,300.00

UNION FIVE-CENT SAVINGS BANK.—EXETER.

WILLIAM P. MOULTON, *President*. SARAH C. CLARK, *Treasurer*.

STATEMENT.

Liabilities.

Amount due depositors.....	\$364,179.87		\$364,179.87
Guaranty fund.....	5,070.00		5,070.00
Surplus.....	12,822.19		12,822.19
Premium on stocks and bonds, im- paired.....	\$382,072.06 21,559.00		
	\$360,513.06		\$382,072.06

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$103,650.00	\$103,650.00	\$103,650.00
Loans secured by local real estate.	93,791.33	93,791.33	93,791.33
Loans on personal security.....	29,342.90	29,342.90	29,342.90
Loans on collateral security.....	11,992.00	11,992.00	11,992.00
County, city, town, and district bonds.....	74,900.00	74,500.00	74,500.00
Railroad bonds.....	800.00	10,000.00	10,000.00
Railroad stock.....	8,400.00	7,500.00	6,500.00
Bank stock.....	7,851.00	7,200.00	7,200.00
Miscellaneous stocks.....	7,790.00	23,100.00	23,100.00
Balance on deposit in Howard Na- tional Bank, Boston	9,393.97	9,393.97	9,393.97
Real estate acquired or held by foreclosure.....	7,964.72	7,964.72	7,964.72
Bank fixtures	1,180.00	1,180.00	1,180.00
Cash on hand.....	3,457.14	3,457.14	3,457.14
	\$360,513.06	\$383,072.06	\$382,072.06

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$19,970.91
Deduct expenses for 1886	\$2,495.35
Deduct state tax for 1886	3,384.37
Deduct items charged off	2,566.38
	<u>8,446.10</u>
Net profits to be accounted for	<u>\$11,524.81</u>

Dividend of 2 per cent, January, 1886	. \$6,227.59
Carried to guaranty fund	. 1,207.00
Balance of profits for 1886	. 4,090.22
Net profits (as above) accounted for	. ———— \$11,524.81
Guaranty fund Jan. 1, 1886	. \$3,863.00
Other undivided profits Jan. 1, 1886	. 9,376.47
Total surplus profits Jan. 1, 1886	. ———— \$13,239.47
Guaranty fund Jan. 1, 1887	. \$5,070.00
Other undivided profits Jan. 1, 1887	. 13,466.69
Total surplus profits Jan. 1, 1887	. ———— 18,536.69
	<hr/>
Increase for the year 1886	. . . . \$5,297.22
Surplus profits — Jan. 1, 1883, \$11,292.97; Jan. 1, 1884, \$12,051.28; Jan. 1, 1885, \$10,607.94; Jan. 1, 1886, \$13,239.47; Jan. 1, 1887, \$18,536.69.	

Incorporated 1868. Charter perpetual.

Examination completed Dec. 13, 1886, by George E. Gage.

Vice-Presidents — W. N. Dow, W. H. C. Follansby.

Trustees — Wm. P. Moulton, W. N. Dow, W. H. C. Follansby, E. G. Eastman, John N. Thompson, J. A. Blake, Thomas Connor, J. W. Sanborn.

Treasurer's bond \$40,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 29, 1883. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$800.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by W. P. Moulton, W. N. Dow, W. H. C. Follansby, and E. G. Eastman.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in other banks.

Number of depositors, 1,991; increase since last examination by Bank Commissioners, 97.

Amount of deposits, \$364,179.87; increase since last examination, \$28,816.29.

Number of single loans of \$1,000 or less to separate parties in the State, 131.

Total amount of loans, \$238,776.23.

Total amount of stocks and bonds, \$121,300.

Largest amount loaned to any individual, corporation, or company, \$8,000.

Amount of assets with interest unpaid for over six months, \$15,171.50.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$150,370.95.

Total amount loaned or invested in New England, \$161,570.95.

Total amount loaned or invested out of New England, \$207,650.

Total amount loaned or invested drawing $1\frac{3}{4}$ per cent interest, \$2,000.

Total amount loaned or invested drawing 4 per cent interest, \$6,000.

Total amount loaned or invested drawing 6 per cent interest, \$162,126.23.

Total amount loaned or invested drawing 7 per cent interest, \$118,050.

Total amount loaned or invested drawing 8 per cent interest, \$22,600.

Total amount loaned or invested drawing 10 per cent interest, \$11,000.

Dividends for the year ending Dec. 31, 1886: January, 1886, 2 per cent, \$6,227.59.

Total expense of institution for the twelve months ending Dec. 13, 1886, \$1,721.

Amount charged off as losses since last examination, \$1,350.

Amount of other taxes, \$84.27.

Amount of deposits received since last examination, \$169,404.25.

Amount of dividends declared since last examination, \$6,227.59.

Amount paid on account of deposits since last examination, \$146,815.55.

SCHEDULE OF BONDS AND STOCKS OF THE UNION FIVE-CENT
SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Toledo, Delphos & Burlington.....	\$800.00	\$10,000.00	\$10,000.00
COUNTY.			
Richland, Ill., 6s.....	\$10,000.00	\$10,000.00	\$10,000.00
Leavenworth, Kan., 6s.....	15,750.00	15,000.00	15,000.00
Lake, Col., 10s.....	9,000.00	9,000.00	9,000.00
	\$34,750.00	\$34,000.00	\$34,000.00
CITY.			
Chicago, Ill., 7s.....	\$3,000.00	\$3,000.00	\$3,000.00
Lincoln Park (No. Chicago), Ill., 7s..	4,200.00	4,000.00	4,000.00
Sterling, Kan., 8s...	2,000.00	2,000.00	2,000.00
Elk, Kan., 10s.....	1,070.00	1,000.00	1,000.00
Quincy, Ill., 6s.....	2,000.00	2,000.00	2,000.00
Evansville, Ind., 7s.....	3,750.00	5,000.00	5,000.00
Lawrenceburg, Ind., 7s.....	4,360.00	4,000.00	4,000.00
Manchester, N. H., 4s.....	3,120.00	3,000.00	3,000.00
	\$23,500.00	\$24,000.00	\$24,000.00
TOWNSHIP.			
Beverly, Mass., 4s.....	\$3,150.00	\$3,000.00	\$3,000.00
SCHOOL DISTRICT.			
Lake County, Col., 8s.....	\$6,000.00	\$6,000.00	\$6,000.00
Ellis " Kan., 10s.....	1,000.00	1,000.00	1,000.00
Osage " Kan., 7s.....	1,500.00	1,500.00	1,500.00
Moorhead, Minn., 8s.....	5,000.00	5,000.00	5,000.00
	\$13,500.00	\$13,500.00	\$13,500.00
RECAPITULATION.			
County.....	\$30,250.00	\$34,000.00	\$34,000.00
City.....	23,500.00	24,000.00	24,000.00
Township.....	3,150.00	3,000.00	3,000.00
School District.....	13,500.00	13,500.00	13,500.00
	\$74,500.00	\$74,500.00	\$74,500.00
STOCKS.			
BANK.			
Metropolitan National, Boston....	\$1,356.00	\$1,200.00	\$1,200.00
Exchange " "	1,270.00	1,000.00	1,000.00
Manufacturers' " "	930.00	1,000.00	1,000.00
Tremont " "	1,010.00	1,000.00	1,000.00
Continental " "	1,180.00	1,000.00	1,000.00
City " "	1,060.00	1,000.00	1,000.00
Bank of North America, "	1,045.00	1,000.00	1,000.00
	\$7,851.00	\$7,200.00	\$7,200.00
RAILROAD.			
Chicago, Burlington & Quincy.....	\$7,700.00	\$5,500.00	\$5,500.00
Rutland.....	700.00	2,000.00	1,000.00
	\$8,400.00	\$7,500.00	\$6,500.00

SCHEDULE OF BONDS AND STOCKS OF THE UNION FIVE-CENT SAVINGS BANK.

STOCKS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
Exeter Machine Works.....	\$2,790.00	\$3,100.00	\$3,100.00
The Silver Cliff Water Supply Co...	5,000.00	20,000.00	20,000.00
	\$7,790.00	\$23,100.00	\$23,100.00

WALPOLE SAVINGS BANK. — WALPOLE.

ALFRED W. BURT, *President.*J. G. BELLOWS, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors.....	\$147,870.03		\$147,870.03
Guaranty fund	5,900.00		5,900.00
Surplus	5,094.93		5,094.93
Premium on stocks and bonds.....	2,827.50		
	<u>\$161,692.46</u>		<u>\$158,864.96</u>

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages.....	\$32,000.00	\$32,000.00	\$32,000.00
Loans secured by local real estate.	60,977.50	60,977.50	60,977.50
Loans on personal security.....	7,849.14	7,849.14	7,849.14
Loans on collateral security.....	2,002.10	2,002.10	2,002.10
County, city, town, and district bonds.....	15,827.50	15,500.00	15,600.00
Railroad bonds.....	21,710.00	19,000.00	19,610.00
Bank stock.....	5,550.00	5,000.00	5,000.00
Manufacturing stock.....	2,700.00	2,500.00	2,750.00
Miscellaneous bonds.....	8,500.00	8,500.00	8,500.00
Balance on deposit in Keene Na- tional Bank.....	576.22	576.22	576.22
Real estate acquired or held by fore- closure.....	4,000.00	4,000.00	4,000.00
	<u>\$161,692.46</u>	<u>\$157,904.96</u>	<u>\$158,864.96</u>

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$10,390.52
Deduct expenses for 1886	\$514.20
Deduct state tax for 1886	1,465.50
Deduct items charged off	103.48
	<u>2,083.18</u>
Net profits to be accounted for	<u>\$8,307.34</u>
Dividend of 4½ per cent, July, 1886 . .	\$6,532.18
Carried to guaranty fund	800.00
Balance of profits for 1886	975.16
Net profits (as above) accounted for . .	<u>\$8,307.34</u>

Guaranty fund Jan. 1, 1886 . . .	\$5,100.00	
Other undivided profits Jan. 1, 1886 . .	1,527.63	
Total surplus profits Jan. 1, 1886 . .	<u> </u>	\$6,627.63
Guaranty fund Jan. 1, 1887 . . .	\$5,900.00	
Other undivided profits Jan. 1, 1887 . .	2,502.79	
Total surplus profits Jan. 1, 1887 . .	<u> </u>	8,402.79
<hr/>		
Increase for the year 1886		\$1,775.16
Surplus profits — Jan. 1, 1883, \$3,903.80 ; Jan. 1, 1884, \$5,- 706.47 ; Jan. 1, 1885, \$6,587.62 ; Jan. 1, 1886, \$6,627.63 ; Jan. 1, 1887, \$8,402.79.		

Incorporated 1875. Charter perpetual.

Examination completed April 30, 1887, by Charles E. Cooper.

Trustees — A. W. Burt, J. W. Hayward, B. Lovell, T. B. Buffum,
E. K. Seabury, G. H. Holden, H. C. Lane, H. G. Burns, W. B.
Porter, H. Allen, and G. B. Williams.

Treasurer's bond \$30,000, copy of which is on file in the office of
secretary of state and on records of the bank. Date of bond,
Feb. 10, 1881. Sureties of bond are able to respond. Bond
deposited with president for safe-keeping.

Annual compensation of treasurer, \$475.

Officers have taken their official oath.

No indebtedness of trustees as principal or as surety.

Loans and investments are made by standing committee.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 485 ; decrease since last examination by
Bank Commissioners, 13.

Amount of deposits, \$147,870.03 ; decrease since last examination,
\$1,912.44.

Amount of bank's assets in Keene for safe-keeping, \$43,000.

Number of single loans of \$1,000 or less to separate parties in the
State, 57.

Total amount of loans, \$102,828.74.

Total amount of stocks and bonds, \$51,460.

Largest amount loaned to any individual, corporation, or company,
\$6,800.

Amount of assets with interest unpaid for over six months, \$8,730.50.

The funds of the institution are invested agreeably to the laws of
New Hampshire.

Total amount loaned or invested in New Hampshire, \$82,828.74.

Total amount loaned or invested in New England, \$90,578.74.

Total amount loaned or invested out of New England, \$67,710.

Total amount loaned or invested drawing 5 per cent interest,
\$5,000.

Total amount loaned or invested drawing 6 per cent interest,
\$106,828.74.

Total amount loaned or invested drawing $6\frac{1}{2}$ per cent interest,
\$2,800.

Total amount loaned or invested drawing 7 per cent interest,
\$33,350.

Total amount loaned or invested drawing 8 per cent interest,
\$5,450.

Dividends for the year ending Dec. 31, 1886: $4\frac{1}{2}$ per cent,
July, 1886, \$6,532.18.

Total expense of institution for the twelve months ending April 30,
1887, \$544.75.

Amount charged off as losses since last examination, nothing.

No other taxes.

Amount of deposits received since last examination, \$26,921.76.

Amount of dividends declared since last examination, \$6,300.58.

Amount paid on account of deposits since last examination,
\$35,134.78.

SCHEDULE OF BONDS AND STOCKS OF THE WALPOLE SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
RAILROAD.			
Kansas City, Lawrence & Southern, 6s.....	\$3,360.00	\$3,000.00	\$2,940.00
Chicago, St. Paul, Minneapolis & Omaha (Consols), 6s.....	3,660.00	3,000.00	3,120.00
St. Paul, Minnesota & Manitoba (Dak. Ex.), 6s.....	3,600.00	3,000.00	3,220.00
Kansas Pacific (Consols), 6s.....	3,450.00	3,000.00	3,135.00
Northern Pacific, 6s.....	2,100.00	2,000.00	2,000.00
Missouri Pacific (Pend D'Oreille), 6s	2,330.00	2,000.00	2,030.00
Galveston, Harrisburg & San Antonio, 6s.....	3,210.00	3,000.00	3,165.00
	<u>\$21,710.00</u>	<u>\$19,000.00</u>	<u>\$19,610.00</u>
CITY.			
Tyler (Water bonds), Tex., 7s.....	\$3,000.00	\$3,000.00	\$3,000.00
TOWNSHIP.			
Monticello, Ill., 8s.....	1,000.00	1,000.00	1,000.00
COUNTY.			
Montgomery, Kan., 7s.....	3,000.00	3,000.00	3,000.00
Lafayette, Mo., 6s.....	1,827.50	1,700.00	1,600.00
Bingham, Id., 8s.....	4,200.00	4,000.00	4,200.00
SCHOOL DISTRICT.			
Riverton (Indp. Dist.), Io., 6½s.....	2,800.00	2,800.00	2,800.00
	<u>\$15,827.50</u>	<u>\$15,500.00</u>	<u>\$15,600.00</u>
MISCELLANEOUS.			
Keene Gas-light Co., 6s.....	\$5,000.00	\$5,000.00	\$5,000.00
Iowa Loan and Trust Co. debentures, 6s.....	500.00	500.00	500.00
New Hampshire Trust Co. deb., 6s.	3,000.00	3,000.00	3,000.00
	<u>\$8,500.00</u>	<u>\$8,500.00</u>	<u>\$8,500.00</u>
STOCKS.			
BANK.			
Blackstone National, Boston.....	\$5,550.00	\$5,000.00	\$5,000.00
MANUFACTURING.			
King Philip Mills, Fall River, Mass.	2,700.00	2,500.00	2,750.00

WILTON SAVINGS BANK. — WILTON.

JOSIAH FREEMAN, *President.*MOSES CLARK, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$85,203.50		\$85,203.50
Guaranty fund.....	4,000.00		4,000.00
Surplus.....	7,248.96		7,248.96
	\$96,452.46		
Premium on stocks and bonds, im- paired	3,421.57		
	\$93,030.89		\$96,452.46

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$40,975.00	\$40,975.00	\$40,975.00
Loans secured by Western town mortgages.....	30,700.00	30,700.00	30,700.00
Loans secured by local real estate..	8,113.36	8,113.36	8,113.36
Loans on personal security.....	3,728.46	3,728.46	3,728.46
County, city, town, and district bonds.....	750.00	4,500.00	4,421.57
Bank stock.....	5,250.00	5,000.00	5,000.00
Balance on deposit in Souhegan National Bank.....	576.07	576.07	576.07
Real estate purchased for the bank	2,500.00	2,500.00	2,500.00
Bank fixtures	438.00	438.00	438.00
	\$93,030.89	\$96,530.89	\$96,452.46

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$6,543.40
Deduct expenses for 1886	\$497.31
Deduct state tax for 1886	601.35
Deduct items charged off	348.99
	<u>1,447.65</u>
Net profits to be accounted for	\$5,095.75
Dividend of 5 per cent, 1886	\$3,628.44
Carried to guaranty fund	200.00
Balance of profits for 1886	1,267.31
Net profits (as above) accounted for	<u>\$5,095.75</u>

Guaranty fund Jan. 1, 1886 . . .	\$3,800.00	
Other undivided profits Jan. 1, 1886 . . .	4,819.21	
Total surplus profits Jan. 1, 1886 . . .	—————	\$8,619.21
Guaranty fund Jan. 1, 1887 . . .	\$4,000.00	
Other undivided profits Jan. 1, 1887 . . .	6,086.52	
Total surplus profits Jan. 1, 1887 . . .	—————	10,086.52
		<hr/>
Increase for the year 1886		\$1,467.31

Surplus profits — Jan. 1, 1883, \$7,188.54; Jan. 1, 1884, \$6,417.27; Jan. 1, 1885, \$7,525.16; Jan. 1, 1886, \$8,619.21; Jan. 1, 1887, \$10,086.52.

Incorporated 1864. Charter perpetual.

Examination completed May 27, 1887, by Geo. E. Gage.

Trustees — E. G. Woodman, A. A. Ramsey, E. P. Hutchinson, D. Cragin, M. Clark, Wm. D. Stearns, L. Kingley, D. E. Proctor, F. D. Cram.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, Jan. 2, 1871. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

Annual compensation of treasurer, \$300.

Officers have taken their official oath.

No indebtedness of trustees as principal, nor as surety.

Loans and investments are made by E. G. Woodman, D. E. Proctor, D. Cragin.

Reports are made as required by law.

This bank receives no interest on its deposits in other banks.

Number of depositors, 495; increase since last examination by Bank Commissioners, 28.

Amount of deposits, \$85,203.50; increase since last examination, \$10,626.57.

Number of single loans of \$1,000 or less to separate parties in the State, 32.

Total amount of loans, \$83,516.82.

Total amount of stocks and bonds, \$9,421.57.

Largest amount loaned to any individual, corporation, or company, \$3,000.

Amount of assets with interest unpaid for over six months, \$3,090.46.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$19,779.82.

Total amount loaned or invested in New England, \$19,779.82.

Total amount loaned or invested out of New England, \$76,096.57.

Total amount loaned or invested drawing 6 per cent interest,
\$7,911.94.

Total amount loaned or invested drawing 7 per cent interest,
\$42,054.88.

Total amount loaned or invested drawing 8 per cent interest,
\$44,050.

Dividends for the year ending Dec. 31, 1886: 5 per cent, 1886,
\$3,628.44.

Total expense of institution for the twelve months ending May 27,
1887, \$333.31.

Amount charged off as losses since last examination, \$300.

No other taxes.

Amount of deposits received since last examination, \$22,681.26.

Amount of dividends declared since last examination, \$5,920.18.

Amount paid on account of deposits since last examination,
\$17,974.87.

SCHEDULE OF BONDS AND STOCKS OF THE WILTON SAVINGS BANK.

BONDS.	Market Value.	Par Value.	Value on Books.
COUNTY.			
Kendall, Ill., 7s.....	\$000.00	\$2,000.00	\$2,107.68
Pulaski, Ill., 7s.	750.00	1,500.00	1,327.50
East Oakland, Ill., 6s.....	000.00	1,000.00	986.39
	\$750.00	\$4,500.00	\$4,421.57
STOCKS.			
BANK.			
First National, Nashua.....	\$5,250.00	\$5,000.00	\$5,000.00

WOLFEBOROUGH SAVINGS BANK.—WOLFEBOROUGH.

A. H. RUST, *President.*IRA BANFIELD, *Treasurer.*

STATEMENT.

Liabilities.

Amount due depositors	\$119,243.82		\$119,243.82
Guaranty fund	1,550.00		1,550.00
Surplus.....	15,925.44		15,925.44
Premium on stocks and bonds.....	507.00		
	\$137,226.26		\$136,719.26

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm mortgages	\$22,906.79	\$22,906.79	\$22,906.79
Loans secured by local real estate.	49,210.19	49,210.19	49,210.19
Loans on personal security.....	35,068.52	35,068.52	35,068.52
Loans on collateral security.....	12,243.96	12,243.96	12,243.96
Bank stock (Lake National, Wolfe- borough).....	8,988.00	8,400.00	8,595.00
Miscellaneous stocks.....	4,414.00	4,300.00	4,300.00
Balance on deposit with Interna- tional Trust Co., Boston.....	2,639.15	2,639.15	2,639.15
Balance on deposit in Lake Na- tional Bank.....	218.14	218.14	218.14
Bank fixtures	600.00	600.00	600.00
Cash on hand.....	937.51	937.51	937.51
	\$137,226.26	\$136,524.26	\$136,719.26

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	\$6,956.33
Deduct expenses for 1886	\$924.68
Deduct state tax for 1886	880.78
	<u>1,805.46</u>
Net profits to be accounted for	\$5,150.87
Dividend of 2 per cent, April, 1886,	\$1,668.15
Dividend of 2 per cent, October, 1886,	1,803.86
Balance of profits for 1886	1,678.86
Net profits (as above) accounted for	<u>\$5,150.87</u>

Guaranty fund Jan. 1, 1886	\$1,550.00
Other undivided profits Jan. 1, 1886	12,839.62
Total surplus profits Jan. 1, 1886	————— \$14,389.62
Guaranty fund Jan. 1, 1887	\$1,550.00
Other undivided profits Jan. 1, 1887	15,282.33
Total surplus profits Jan. 1, 1887	————— 16,832.33
<hr/>	
Increase for the year 1886	\$2,442.71

Surplus profits — Jan. 1, 1883, \$10,792.75; Jan. 1, 1884, \$11,491.57; Jan. 1, 1885, \$13,318.47; Jan. 1, 1886, \$14,389.62; Jan. 1, 1887, \$16,832.33.

Incorporated 1871. Charter perpetual.

Examination completed June 10, 1887, by George E. Gage.

Vice-President — W. H. Jones.

Trustees — James L. Avery, Charles G. Cate, James W. Goodwin, A. W. Wiggin, Ira Banfield, Levi T. Haley, C. H. Gage, W. B. Hodge, H. W. Furber, C. T. Piper, J. B. Haines.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, March 9, 1878. Sureties of bond are able to respond. Bond deposited with William C. Fox for safe-keeping.

Annual compensation of treasurer, \$600.

Officers have taken their official oath.

Indebtedness of trustees as principal, \$5,200; as surety, \$680, by unanimous consent of trustees.

Loans and investments are made by C. G. Cate, A. W. Wiggin, H. W. Furber, C. F. Piper, W. H. Jones.

Reports are made as required by law.

This bank receives $2\frac{1}{2}$ per cent interest on its deposits in Boston banks.

Number of depositors, 476; increase since last examination by Bank Commissioners, 108.

Amount of deposits, \$119,243.82; increase since last examination, \$15,237.02.

Number of single loans of \$1,000 or less to separate parties in the State, 201.

Total amount of loans, \$119,429.46.

Total amount of stocks and bonds, \$12,895.

Largest amount loaned to any individual, corporation, or company, \$6,000.

Amount of notes with interest unpaid for over six months, \$2,673.74.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$107,417.67.

Total amount loaned or invested in New England, \$109,417.67.

Total amount loaned or invested out of New England, \$22,906.79.

Total amount loaned or invested drawing 6 per cent interest, \$107,017.67.

Total amount loaned or invested drawing 7 per cent interest, \$13,099.76.

Total amount loaned or invested drawing 8 per cent interest, \$7,885.16.

Total amount loaned or invested drawing 9 per cent interest, \$1,921.87.

Amount invested from which no income has been received during the year, \$400.

Dividends for the year ending Dec. 31, 1886: April, 1886, 2 per cent, \$1,668.15; October, 1886, 2 per cent, \$1,803.86.

No extra dividend declared.

Total expense of institution for the twelve months ending June 10, 1887, \$902.95.

Nothing charged off as losses since last examination.

Amount of other taxes, \$82.22.

Amount of deposits received since last examination, \$127,044.76.

Amount of dividends declared since last examination, \$5,389.45.

Amount paid on account of deposits since last examination, \$117,197.19.

SCHEDULE OF STOCKS OF THE WOLFEBOROUGH SAVINGS BANK.

STOCKS.	Market Value.	Par Value.	Value on Books.
MISCELLANEOUS.			
Granite State Fire Insurance Co....	\$2,400.00	\$2,400.00	\$2,400.00
People's Fire Insurance Co.....	2,014.00	1,900.00	1,900.00
	\$4,414.00	\$4,300.00	\$4,300.00

TRUST COMPANY.

NEW HAMPSHIRE TRUST COMPANY.—MANCHESTER.

JAMES A. WESTON, *President.*

HIRAM D. UPTON, *Treasurer.*

STATEMENT.

Liabilities.

Capital.....	\$200,000.00		\$200,000.00
Debentures issued..... \$489,300.00			
On hand..... 22,400.00			
	466,900.00		466,900.00
Contingent fund.....	23,269.30		23,269.30
Surplus.....	27,350.77		27,350.77
Deposit account.....	116,983.73		116,983.73
	\$834,503.80		
Premium on stocks and bonds.....	50.00		
	\$834,553.00		\$834,503.80

Resources.

	Market Value April 1, 1887.	Par Value.	Value on Books.
Loans secured by Western farm and city mortgages (in hands of trustees).....	\$495,915.05	\$495,915.05	\$495,915.05
Loans secured by Western farm and city mortgages.....	47,290.50	47,290.50	47,290.50
Miscellaneous notes.....	86,950.85	86,950.85	86,950.85
Loans on personal security.....	49,759.85	49,759.85	49,759.85
Loans on personal security (West- ern).....	16,000.00	16,000.00	16,000.00
Loans on collateral security.....	75,000.00	75,000.00	75,000.00
County, city, town, and district bonds.....	2,582.57	2,582.57	2,582.57
Bank stock.....	550.00	500.00	500.00
Miscellaneous bonds.....	15,000.00	15,000.00	15,000.00
Balance on deposit in national bank.....	9,058.43	9,058.43	9,058.43
In hands of investing agents.....	30,211.98	30,211.98	30,211.98
Bank fixtures.....	1,929.38	1,929.38	1,929.38
Cash on hand.....	4,305.19	4,305.19	4,305.19
	\$834,553.80	\$834,503.80	\$834,503.80

Statement of earnings for the year ending Dec. 31, 1886.

Earnings for the year 1886	.	.	.	.	\$55,962.65
Deduct expenses for 1886	.	.	.	\$26,996.41	
Deduct furniture charged off	.	.	.	2,000.00	
				<hr/>	28,996.41

Net profits to be accounted for	.	.	.	.	\$26,966.24
Dividend of 3 per cent, June 30, 1886	.			\$6,000.00	
Dividend of 3 per cent, Dec. 31, 1886	.			6,000.00	
Carried to surplus	.	.	.	10,000.00	
Balance of profits for 1886	.	.	.	4,966.24	
				<hr/>	

Net profits (as above) accounted for	.	.	.	\$26,966.24	
Surplus Jan. 1, 1887	.	.	.	\$10,000.00	
Other undivided profits Jan. 1, 1887	.			4,966.24	
Total surplus profits Jan. 1, 1887	.			<hr/>	\$14,966.24

Surplus profits — Jan. 1, 1887, \$14,966.24.

Incorporated 1885. Charter perpetual.

Examination completed April 25, 1887, by Geo. E. Gage and Chas. E. Cooper.

Vice-Presidents — Charles H. Bartlett, F. R. Clement.

Directors — James A. Weston, James F. Briggs, Charles H. Bartlett, Alonzo Elliott, William P. Chamberlain, Seth M. Richards, Hiram A. Tuttle, Sumner B. Pearmain, Henry Allison, Benjamin F. Cutler, Henry K. French, John M. Parker, Benjamin A. Kimball, William M. Chase, F. D. Hutchins, John Sise, Charles H. Sawyer, Hiram D. Upton, Foster R. Clement, Leonard P. Foster, George S. Dowley, and George C. Fiske.

Treasurer's bond \$25,000, copy of which is on file in the office of secretary of state and on records of the bank. Date of bond, December, 1885. Sureties of bond are able to respond. Bond deposited with president for safe-keeping.

F. R. Clement, manager Minneapolis office, — compensation, \$3,500; H. M. Rich, Fargo office, — compensation, \$1,800; L. P. Foster, Boston office, — compensation, \$2,500. Clerk hire, \$6,200 in Western offices.

Annual compensation of treasurer, \$3,500.

Annual compensation of three clerks in home office, \$1,350.

Officers have taken their official oath.

Indebtedness of directors as principal, none; as surety, \$25,000, by unanimous consent of directors.

Loans and investments are made by Messrs. Weston, Briggs, Bartlett, Upton, and Foster.

Reports are made as required by law.

This bank receives 2 per cent interest on its deposits in other banks.

Total amount of loans, \$690,876.12.

Total amount of stocks and bonds, \$18,082.

Largest amount loaned to any individual, corporation, or company, \$75,000.

Amount of assets with interest unpaid for over six months, \$1,600.

The funds of the institution are invested agreeably to the laws of New Hampshire.

Total amount loaned or invested in New Hampshire, \$50,500.

Total amount loaned or invested in New England, \$50,500.

Total amount loaned or invested out of New England, \$718,950.95.

Dividends for the year ending Dec. 31, 1886: June 30, 1886, 3 per cent, \$6,000; Dec. 31, 1886, 3 per cent, \$6,000.

Total expense of institution for the twelve months ending April 23, 1887, \$28,925.63.

Amount charged off as losses since last examination, none.

Amount of loans guaranteed, \$360,422.00.

SCHEDULE OF BONDS AND STOCKS OF THE NEW HAMPSHIRE TRUST COMPANY.

BONDS.	Market Value.	Par Value.	Value on Books.
SCHOOL DISTRICT.			
Clarion, Wright County (Independent), Io., 6s	\$1,500.00	\$1,500.00	\$1,500.00
CITY.			
Keene, N. H., 6s.....	100.00	100.00	100.00
Wahpeton (city order), Dak., 10s....	982.57	982.57	982.57
	<u>\$2,582.57</u>	<u>\$2,582.57</u>	<u>\$2,582.57</u>
MISCELLANEOUS.			
Wahpeton Water Co., Dak., 6s.....	\$15,000.00	\$15,000.00	\$15,000.00
STOCKS.			
BANK.			
Winchester National.....	\$550.00	\$500.00	\$500.00

STATEMENTS

Furnished by the respective banks at the close of business, March 31, 1887.

Condition of the Alton Five-Cents Savings Bank, of Alton, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$64,117.92
Surplus..	2,753.37
Guaranty fund.....	1,620.52
	<hr/>
	\$68,491.81

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$40,744.87	\$40,744.87	\$40,744.87
Loans on personal security.....	10,130.72	10,130.72	10,130.72
Loans on collateral security.....	2,257.69	2,257.69	2,257.69
Railroad stock.....	1,968.00	3,200.00	3,035.00
Railroad bonds	3,540.00	3,200.00	3,265.58
Other investments.....	5,000.00	5,000.00	5,000.00
Real estate	805.00	805.00	805.00
Bank fixtures	407.55	407.55	407.55
Cash	2,845.40	2,845.40	2,845.40
	<hr/>	<hr/>	<hr/>
	\$67,699.23	\$68,591.23	\$68,491.81

Condition of the Amoskeag Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$3,368,840.68
Surplus	146,366.78
Guaranty fund.....	175,000.00
	<u>\$3,690,207.46</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,436,517.82	\$1,436,517.82	\$1,436,517.82
Loans on personal security.....	548,915.88	548,915.88	548,915.88
Loans on collateral security.....	343,979.34	343,979.34	343,977.34
United States bonds.....	190,500.00	150,000.00	150,000.00
County, city, town, and district bonds.....	149,600.00	132,200.00	132,075.00
Bank stock.....	294,900.00	242,400.00	232,400.00
Railroad stock.....	433,460.00	297,400.00	283,520.00
Railroad bonds.....	334,090.00	316,000.00	295,720.00
Manufacturing stocks.....	140,500.00	95,000.00	95,000.00
Other investments.....	153,000.00	147,600.00	127,320.00
Balance on deposit in Amoskeag National Bank.....	30,087.60	30,087.60	30,087.60
Cash	14,671.82	14,671.82	14,671.82
	<u>\$4,070,222.46</u>	<u>\$3,754,772.46</u>	<u>\$3,690,207.46</u>

Condition of the Ashland Savings Bank, of Ashland, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$52,272.85
Surplus....	10,269.65
Guaranty fund.....	3,146.19
	<u>\$65,688.69</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$54,082.10	\$54,082.10	\$54,082.10
Loans on personal security.....	6,530.12	6,530.12	6,530.12
Loans on collateral security.....	4,294.05	4,294.05	4,294.05
Bank fixtures	769.41	769.41	769.41
Balance on deposit in Boston bank	.22	.22	.22
Cash	12.79	12.79	12.79
	<u>\$65,688.69</u>	<u>\$65,688.69</u>	<u>\$65,688.69</u>

Condition of the Belknap Savings Bank, of Laconia, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$696,668.14
Surplus.....	42,410.05
Guaranty fund.....	29,000.00
	<u>\$768,078.19</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$469,754.47	\$469,754.47	\$469,754.47
Loans on personal security.....	72,709.85	72,709.85	72,709.85
Loans on collateral security.....	29,924.77	29,924.77	29,924.77
United States bonds.....	12,900.00	10,000.00	9,950.00
County, city, town, and district bonds.....	44,900.00	44,700.00	43,750.00
Bank stock.....	3,010.00	2,800.00	2,800.00
Railroad stock.....	5,362.50	5,000.00	5,000.00
Railroad bonds.....	49,760.00	44,000.00	44,000.00
Manufacturing stocks.....	5,150.00	5,150.00	5,150.00
Other investments.....	27,500.00	27,500.00	27,150.00
Real estate.....	16,000.00	16,000.00	16,000.00
Balance on deposit in Safe Deposit and Trust Co., Boston.....	31,826.09	31,826.09	31,826.09
Cash.....	10,063.01	10,063.01	10,063.01
	<u>\$778,860.69</u>	<u>\$769,428.19</u>	<u>\$768,078.19</u>

Condition of the Bristol Savings Bank, of Bristol, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$500,660.51
Surplus.....	13,953.83
Guaranty fund.....	30,000.00
	<u>\$544,614.34</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$401,834.86	\$401,834.86	\$401,834.86
Loans on personal security.....	7,795.86	7,795.86	7,795.86
Loans on collateral security.....	10,740.80	10,740.80	10,740.80
County, city, town, and district bonds.....	21,284.00	20,482.00	20,472.00
Bank stock.....	8,215.00	5,300.00	6,625.00
Railroad bonds.....	12,330.00	11,000.00	11,000.00
Other investments.....	76,610.00	70,100.00	70,100.00
Real estate acquired or held by foreclosure.....	2,046.95	2,846.95	2,846.95
In hands of investing agents.....	12,238.11	12,238.11	12,238.11
Cash.....	960.76	960.76	960.76
	<u>\$554,056.34</u>	<u>\$543,299.34</u>	<u>\$544,614.34</u>

Condition of the Cheshire Provident Institution, of Keene, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$2,171,794.57
Surplus.....	73,942.40
Guaranty fund.....	110,000.00
	<u>\$2,355,736.97</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,257,240.59	\$1,257,240.59	\$1,257,240.59
Loans on personal security.....	92,987.08	92,987.08	92,987.08
Loans on collateral security.....	92,634.99	94,634.99	94,634.99
County, city, town, and district bonds.....	355,006.72	338,306.72	329,167.72
Bank stock.....	91,385.00	72,700.00	84,769.13
Railroad stock.....	94,500.00	71,000.00	72,162.50
Railroad bonds....	119,500.00	112,000.00	112,250.00
Other investments.....	156,786.50	151,886.50	151,861.50
Real estate.....	55,000.00	60,299.47	60,299.47
Real estate acquired or held by foreclosure.....	23,117.55	4,117.55	4,117.55
Balance on deposit in nat. banks...	46,863.21	46,863.21	46,863.21
Cash.....	4,503.81	4,503.81	4,503.81
Balance with loan and trust companies.....	44,879.42	44,879.42	44,879.42
	<u>\$2,434,404.87</u>	<u>\$2,351,419.34</u>	<u>\$2,355,736.97</u>

Condition of the City Savings Bank, of Nashua, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$272,747.11
Surplus.....	11,746.71
Guaranty fund.....	3,000.00
	<u>\$287,493.82</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$140,331.35	\$140,331.35	\$140,331.35
Loans on personal security.....	55,984.75	55,984.75	55,984.75
Loans on collateral security.....	37,287.83	37,287.83	37,287.83
Bank stock.....	20,570.00	18,700.00	19,695.00
Railroad stock.....	20,630.00	19,800.00	19,274.37
Railroad bonds.....	3,450.00	3,000.00	2,878.42
Other investments.....	10,800.00	10,800.00	10,800.00
Bank fixtures.....	600.00	600.00	600.00
Balance on deposit in First National Bank.....	438.33	438.33	438.33
Cash.....	203.77	203.77	203.77
	<u>\$290,296.03</u>	<u>\$287,146.03</u>	<u>\$287,493.82</u>

Condition of the Cochecho Savings Bank, of Dover, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$235,316.09
Surplus.....	3,114.40
Guaranty fund.....	10,400.00
	<u>\$248,830.49</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$48,078.87	\$48,078.87	\$48,078.87
Loans on personal security.....	20,823.20	20,823.20	20,823.20
Loans on collateral security.....	34,323.07	34,323.07	34,323.07
Bank stock.....	33,869.33	32,300.00	30,525.23
Railroad stock.....	22,956.25	25,000.00	24,932.50
Railroad bonds.....	81,350.00	80,000.00	81,392.75
Real estate acquired or held by foreclosure.....	3,678.79	3,678.79	3,678.79
Balance on deposit in Cochecho Bank.....	5,076.08	5,076.08	5,076.08
	<u>\$250,155.59</u>	<u>\$249,280.01</u>	<u>\$248,830.49</u>

Condition of the Connecticut River Savings Bank, of Charlestown, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$556,295.74
Guaranty fund	26,000.00
	<u>\$582,295.74</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$350,884.46	\$350,884.46	\$350,884.46
Loans on personal security.....	43,607.18	43,607.18	43,607.18
Loans on collateral security.....	24,650.00	24,650.00	24,650.00
County, city, town, and district bonds.....	65,819.98	57,299.98	63,995.98
Bank stock.....	18,480.00	13,900.00	17,548.00
Railroad bonds...	18,700.00	16,000.00	18,700.00
Other investments.....	33,000.00	32,000.00	33,000.00
Real estate acquired or held by foreclosure.....	1,400.00	1,400.00	1,400.00
Balance on deposit in Connecticut River National Bank.....	28,498.33	28,498.33	28,498.33
Interest.....	11.79	11.79	11.79
	<u>\$585,051.74</u>	<u>\$568,251.74</u>	<u>\$582,295.74</u>

Condition of the Contoocook Valley Savings Bank, of Peterborough, at close of business, March 31, 1887.

Liabilities.

Due depositors	\$27,686.10
Surplus	330.56
Guaranty fund	200.00
	<u>\$28,216.66</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$19,098.00	\$19,098.00	\$19,098.00
Loans on personal security.....	638.00	638.00	638.00
County, city, town, and district bonds.....	2,050.00	2,000.00	1,975.00
Other investments.....	6,500.00	6,000.00	6,000.00
Bank fixtures	220.56	220.56	220.56
Balance on deposit in First National Bank of Peterborough.....	263.99	263.99	263.99
Cash	21.11	21.11	21.11
	<u>\$28,791.66</u>	<u>\$28,241.66</u>	<u>\$28,216.66</u>

Condition of the Conway Savings Bank, of Conway, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$67,180.34
Due on account.....	1,532.88
Surplus.....	2,229.74
Guaranty fund.....	2,160.08
	<u>\$73,103.04</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$44,376.88	\$44,376.88	\$44,376.88
Loans on personal security.....	13,676.98	13,676.98	13,676.98
Loans on collateral security.....	3,127.00	3,127.00	3,127.00
Other investments.....	2,357.56	2,357.56	2,357.56
Real estate acquired or held by foreclosure.....	3,657.00	3,657.00	3,657.00
Balance on deposit in National Exchange Bank, Boston.....	4,152.15	4,152.15	4,152.15
Cash.....	1,755.47	1,755.47	1,755.47
	<u>\$73,103.04</u>	<u>\$73,103.04</u>	<u>\$73,103.04</u>

Condition of the Dartmouth Savings Bank, of Hanover, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$783,396.50
Surplus.....	35,620.31
Guaranty fund.....	18,000.00
	<u>\$837,016.81</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$402,140.00	\$402,140.00	\$402,140.00
Loans on personal security	7,216.27	7,216.27	7,216.27
Loans on collateral security	8,415.00	8,415.00	8,415.00
County, city, town, and district bonds.....	137,421.75	132,209.00	127,604.00
Bank stock.....	19,250.00	15,400.00	15,400.00
Railroad stock.....	3,674.00	2,900.00	2,900.00
Railroad bonds.....	256,907.05	248,500.00	225,946.25
Other investments.....	17,297.07	22,597.07	14,597.07
Real estate.....	8,000.00	8,000.00	8,000.00
Real estate acquired or held by foreclosure.....	2,800.00	2,800.00	2,800.00
Balance on deposit in Dartmouth National Bank.....	21,998.22	21,998.22	21,998.22
	<u>\$885,119.36</u>	<u>\$872,175.56</u>	<u>\$837,016.81</u>

Condition of the Dover Five-Cent Savings Bank, of Dover, at close of business, March 31, 1887.

Liabilities.

Due depositors	\$191,989.94
Surplus.....	3,459.94
Guaranty fund	9,000.00
	<u>\$204,449.88</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$68,256.00	\$68,256.00	\$68,256.00
Loans on personal security	10,782.28	10,782.28	10,782.28
Loans on collateral security.....	14,070.00	14,070.00	14,070.00
Bank stock.....	15,625.00	12,500.00	14,292.00
Railroad bonds.....	72,785.00	76,900.00	71,797.00
Other investments.....	2,080.00	2,000.00	2,000.00
Real estate acquired or held by foreclosure.....	14,833.20	14,833.20	14,833.20
Balance on deposit in Dover National Bank.....	8,419.40	8,419.40	8,419.40
	<u>\$206,850.88</u>	<u>\$207,760.88</u>	<u>\$204,449.88</u>

Condition of the Epping Savings Bank, of Epping, on April 16, 1887.

Liabilities.

Due depositors.....	\$64,487.53
Surplus.....	1,324.43
Guaranty fund.....	1,128.24
	<u>\$66,940.20</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$43,613.00	\$43,613.00	\$43,613.00
Loans on personal security.....	10,516.85	10,516.85	10,516.85
Loans on collateral security.....	1,825.00	1,825.00	1,825.00
Bank stock.....	1,100.00	1,000.00	1,167.67
Railroad bonds.....	8,327.67	9,000.00	8,260.00
Bank fixtures.	384.08	384.08	384.08
Cash.....	1,173.60	1,173.60	1,173.60
	<u>\$66,940.20</u>	<u>\$67,512.53</u>	<u>\$66,940.20</u>

Condition of the Farmers' Savings Bank, of Pittsfield, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$39,689.64
Surplus	1,059.05
	<u>\$40,748.69</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$23,245.00	\$23,245.00	\$23,245.00
Loans on personal security.....	9,931.57	9,931.57	9,931.57
Loans on collateral security.....	5,734.00	5,734.00	5,734.00
Bank stock.....	1,050.00	1,000.00	1,050.00
Other investments(New Hampshire Trust Co. bond).....	500.00	500.00	500.00
Bank fixtures.....	249.65	249.65	249.65
Balance on deposit in Pittsfield National Bank.....	38.47	38.47	38.47
	<u>\$40,748.69</u>	<u>\$40,698.69</u>	<u>\$40,748.69</u>

Condition of the Farmington Savings Bank, of Farmington, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$419,090.51
Surplus.....	12,690.23
Guaranty fund.....	15,000.00
	<hr/>
	\$446,780.74

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$365,129.17	\$365,129.17	\$365,129.17
Loans on personal security.....	10,874.90	10,874.90	10,874.90
Loans on collateral security.....	2,914.25	2,914.25	2,914.25
County, city, town, and district bonds.....	9,555.00	9,100.00	9,100.00
Bank stock.....	45,900.00	40,800.00	40,800.00
Other investments.....	11,000.00	11,000.00	11,000.00
Real estate.....	4,000.00	4,000.00	4,000.00
Balance on deposit in Farmington National Bank.....	2,962.42	2,962.42	2,962.42
	<hr/>	<hr/>	<hr/>
	\$452,335.74	\$446,780.74	\$446,780.74

Condition of the Fitzwilliam Savings Bank, of Fitzwilliam, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$147,380.11
Surplus.....	5,256.69
Guaranty fund.....	3,000.00
	<hr/>
	\$155,636.80

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$91,129.31	\$91,129.31	\$91,129.31
Loans on personal security.....	8,790.28	8,790.28	8,790.28
Loans on collateral security.....	2,350.00	2,350.00	2,350.00
County, city, town, and district bonds.....	7,747.00	7,300.00	7,727.00
Bank stock.....	8,820.00	6,900.00	7,851.00
Railroad bonds.....	5,500.00	5,000.00	4,934.17
Other investments.....	31,895.00	29,300.00	29,900.00
Bank fixtures.....	550.00	550.00	550.00
Balance on deposit in Ashuelot Bank and Int. Trust Co.....	1,615.11	1,615.11	1,615.11
Cash.....	789.93	789.93	789.93
	<hr/>	<hr/>	<hr/>
	\$159,186.63	\$153,724.63	\$155,636.80

Condition of the Francestown Savings Bank, of Francestown, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$100,320.00
Surplus	1,395.93
Guaranty fund.....	2,553.93
	<u>\$104,269.86</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$62,703.66	\$62,703.66	\$62,703.66
Loans on personal security.....	5,813.18	5,813.18	5,813.18
Loans on collateral security.....	4,811.41	4,811.41	4,811.41
County, city, town, and district bonds.....	8,650.00	8,200.00	8,350.00
Bank stock.....	10,810.00	9,500.00	10,442.50
Other investments.....	8,000.00	8,300.00	7,800.00
Real estate.....	457.10	457.10	457.10
Bank fixtures	87.50	87.50	87.50
Balance on deposit in First National Bank.....	756.49	756.49	756.49
Balance on deposit with International Trust Co., Boston.....	2,399.48	2,399.48	2,399.48
Cash	648.54	648.54	648.54
	<u>\$105,137.36</u>	<u>\$103,677.36</u>	<u>\$104,269.86</u>

Condition of the Franklin Savings Bank, of Franklin, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$645,960.32
Surplus	24,861.27
Guaranty fund.....	26,183.01
	<u>\$697,004.60</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$337,772.25	\$337,772.25	\$337,772.25
Loans on personal security.....	88,993.73	88,993.73	88,993.73
Loans on collateral security	96,781.44	96,781.44	96,781.44
Bank stock.....	28,255.00	25,600.00	25,600.00
Railroad stock.....	19,450.00	22,000.00	20,500.00
Railroad bonds.....	102,325.00	90,500.00	90,500.00
Other investments.....	28,500.00	28,500.00	28,500.00
Bank fixtures	500.00	500.00	500.00
Balance on deposit in Franklin National Bank.....	6,967.49	6,967.49	6,967.49
Cash.....	889.69	889.69	889.69
	<u>\$710,434.60</u>	<u>\$698,504.60</u>	<u>\$697,004.60</u>

Condition of the Gorham Five-Cent Savings Bank, of Gorham,
at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$65,233.70
Surplus	19,147.05
Guaranty fund.....	1,668.74
	<u>\$86,049.49</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$54,955.17	\$54,955.17	\$54,955.17
Loans on personal security.....	23,827.92	23,827.92	23,827.92
Loans on collateral security.....	6,259.13	6,259.13	6,259.13
Other investments....	626.14	626.14	626.14
Balance on deposit in national bank.....	251.81	251.81	251.81
Cash.....	129.32	129.32	129.32
	<u>\$86,049.49</u>	<u>\$86,049.49</u>	<u>\$86,049.49</u>

Condition of the Keene Guaranty Savings Bank, of Keene, at
close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$547,470.97
Surplus.....	22,924.92
Guaranty fund.....	80,000.00
	<u>\$650,395.89</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$395,701.85	\$395,701.85	\$395,701.85
Loans on personal security.....	14,575.00	14,575.00	14,575.00
Loans on collateral security.....	6,950.00	6,950.00	6,950.00
County, city, town, and district bonds.....	32,810.00	31,000.00	31,000.00
Bank stock.....	40,800.00	37,000.00	37,775.00
Railroad stock.....	57,210.00	47,400.00	49,827.50
Railroad bonds.....	4,000.00	4,000.00	4,000.00
Other investments.....	102,400.00	95,100.00	97,300.00
Balance on deposit in Citizens' National Bank.....	4,041.25	4,041.25	4,041.25
Cash with loan agents.....	7,245.16	7,245.16	7,245.16
Cash.....	1,493.98	1,493.98	1,493.98
Expenses paid.....	486.15	486.15	486.15
	<u>\$667,713.39</u>	<u>\$644,993.39</u>	<u>\$650,395.89</u>

Condition of the Guaranty Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$726,084.58
Surplus.....	49,628.28
Guaranty fund.....	100,000.00
	<u>\$875,712.86</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$523,808.52	\$523,808.52	\$523,808.52
Loans on personal security.....	20,704.09	20,704.09	20,704.09
Loans on collateral security.....	101,811.39	101,811.39	101,811.39
County, city, town, and district bonds.....	20,390.00	18,800.00	18,800.00
Bank stock.....	23,360.00	18,650.00	18,650.00
Railroad stock.....	78,060.00	77,200.00	68,734.00
Railroad bonds.....	55,720.00	54,000.00	54,000.00
Manufacturing stocks.....	10,980.00	9,000.00	10,955.00
Other investments.....	24,600.00	23,000.00	23,000.00
Real estate acquired or held by foreclosure.....	11,281.21	11,281.21	11,281.21
Balance on deposit in Merchants' National Bank.....	18,649.27	18,649.27	18,649.27
Cash.....	5,319.38	5,319.38	5,319.38
	<u>\$894,683.86</u>	<u>\$882,223.86</u>	<u>\$875,712.86</u>

Condition of the Hinsdale Savings Bank, of Hinsdale, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$238,050.33
Surplus.....	3,398.93
Guaranty fund.....	11,902.51
	<u>\$253,351.77</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate....	\$152,626.11	\$152,626.11	\$152,626.11
Loans on personal security.....	12,004.28	12,004.28	12,004.28
County, city, town, and district bonds.....	49,067.50	45,000.00	45,000.00
Bank stock....	39,520.42	36,070.42	36,070.42
Other investments.....	5,387.48	5,387.48	5,387.48
Cash.....	2,263.48	2,263.48	2,263.48
	<u>\$260,869.27</u>	<u>\$253,351.77</u>	<u>\$253,351.77</u>

Condition of the Iona Savings Bank, of Tilton, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$316,166.14
Surplus.....	6,488.79
Guaranty fund.....	7,900.00
	<u>\$330,554.93</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$261,115.71	\$261,115.71	\$261,115.71
Loans on personal security.....	24,384.66	24,384.66	24,384.66
Loans on collateral security.....	11,993.00	11,993.00	11,993.00
County, city, town, and district bonds.....		10,000.00	10,000.00
Railroad stock ..		1,000.00	1,000.00
Railroad bonds.....		16,000.00	14,500.00
Real estate	480.00	480.00	480.00
Real estate acquired or held by foreclosure.....	4,810.00	4,810.00	4,810.00
Cash.....	2,271.56	2,271.56	2,271.56
		<u>\$332,054.93</u>	<u>\$330,554.93</u>

Condition of the Keene Five-Cents Savings Bank, of Keene, at close of business, March 31, 1887.

Liabilities.

Due depositors	\$2,224,081.45
Surplus.....	28,536.90
Guaranty fund.....	100,000.00
	<u>\$2,352,618.35</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,376,688.86	\$1,376,688.86	\$1,376,688.86
Loans on personal security.....	112,472.34	112,472.34	112,472.34
Loans on collateral security.....	120,546.54	120,546.54	120,546.54
County, city, town, and district bonds.....	241,212.00	231,647.00	233,528.50
Bank stock.....	99,916.00	82,400.00	90,691.00
Railroad stock.....	49,550.00	40,000.00	38,781.25
Railroad bonds.....	50,875.00	52,000.00	51,743.75
Other investments.....	277,189.40	268,914.40	269,014.40
Real estate acquired or held by foreclosure.....	4,844.79	4,844.79	4,844.79
Balance on deposit in national banks.....	17,680.30	17,680.30	17,680.30
Balance with loan and trust companies	29,563.40	29,563.40	29,563.40
Cash.....	7,063.22	7,063.22	7,063.22
	<u>\$2,387,601.85</u>	<u>\$2,343,820.85</u>	<u>\$2,352,618.35</u>

Condition of the Laconia Savings Bank, of Laconia, at close of business, March 31, 1887.

Liabilities.

Due depositors	\$868,761.48
Surplus	33,142.77
Guaranty fund	35,000.00

\$936,904.25

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$507,077.40	\$507,077.40	\$507,077.40
Loans on personal security.	71,932.55	71,932.55	71,932.55
Loans on collateral security.....	44,674.00	44,674.00	44,674.00
United States bonds	32,125.00	25,000.00	25,000.00
State bonds.....	5,990.00	5,600.00	5,600.00
County, city, town, and district bonds.....	98,503.40	91,868.40	91,868.40
Bank stock.....	26,997.00	23,300.00	23,300.00
Railroad stock.....	5,500.00	5,000.00	5,000.00
Railroad bonds.....	55,813.00	51,800.00	48,400.00
Other investments.....	97,900.00	97,000.00	97,000.00
Real estate acquired or held by foreclosure.....	9,200.00	9,200.00	9,200.00
Balance on deposit in Boston National Bank.....	4,790.24	4,790.24	4,790.24
Balance on deposit in Laconia National Bank.....	719.02	719.02	719.02
Cash	2,342.64	2,342.64	2,342.64
	\$963,564.25	\$940,304.25	\$936,904.25

Condition of the Lake Village Savings Bank, of Lake Village, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$223,753.97
Surplus	22,204.00
Guaranty fund	7,434.82

\$253,392.79

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$197,574.36	\$197,574.36	\$197,574.36
Loans on personal security.....	11,800.76	11,800.76	11,800.76
Loans on collateral security.....	2,593.00	2,593.00	2,593.00
State bonds.....	120.00	100.00	100.00
County, city, town, and district bonds.....	25,450.00	23,000.00	22,082.34
Bank stock.....	11,160.00	10,200.00	10,630.00
Railroad bonds.....	4,180.00	3,800.00	3,765.00
Real estate acquired or held by foreclosure.....	2,209.59	2,209.59	2,209.59
Bank fixtures.....	875.00	875.00	875.00
Balance on deposit in bank.....	1,050.25	1,050.25	1,050.25
Cash	712.49	712.49	712.49
	\$257,725.45	\$253,915.45	\$253,392.79

Condition of the Lancaster Savings Bank, of Lancaster, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$330,867.32
Surplus.....	9,085.98
Guaranty fund	2,463.36
	<u>\$342,416.66</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$184,844.46	\$184,844.46	\$184,844.46
Loans on personal security.....	12,464.08	12,464.08	12,464.08
Loans on collateral security.....	9,237.60	9,237.60	9,237.60
County, city, town, and district bonds.....	93,235.00	87,300.00	93,494.70
Bank stock.....	2,280.00	2,000.00	2,000.00
Railroad stock.....	3,150.00	3,000.00	2,520.00
Railroad bonds.....	19,560.00	18,000.00	19,055.88
Other investments.....	2,425.00	2,200.00	2,200.00
Bank fixtures.....	700.00	700.00	700.00
Balance on deposit in Maverick Bank.....	13,058.53	13,058.53	13,058.53
Cash.....	2,841.41	2,841.41	2,841.41
	<u>\$343,796.08</u>	<u>\$335,646.08</u>	<u>\$342,416.66</u>

Condition of the Lebanon Savings Bank, of Lebanon, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$780,499.82
Surplus.....	51,219.26
Guaranty fund.....	22,400.00
	<u>\$854,119.08</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$693,260.69	\$693,260.69	\$693,260.69
Loans on personal security.....	5,991.77	5,991.77	5,991.77
Loans on collateral security.....	17,199.00	17,199.00	17,199.00
County, city, town, and district bonds.....	29,100.00	26,700.00	26,209.00
Bank stock.....	33,860.00	30,300.00	32,792.00
Railroad bonds.....	26,577.50	25,300.00	24,950.00
Other investments.....	11,448.54	11,448.54	11,448.54
Real estate acquired or held by foreclosure.....	3,386.01	3,386.01	3,386.01
Bank fixtures.....	1,000.00	1,000.00	1,000.00
Balance on deposit in Shawmut Bank.....	29,628.89	29,628.89	29,628.89
Cash.....	8,253.18	8,253.18	8,253.18
	<u>\$859,705.58</u>	<u>\$852,468.08</u>	<u>\$854,119.08</u>

Condition of the Littleton Savings Bank, of Littleton, at close of business, March 31, 1887.

Liabilities.

Due depositors	\$712,344.53
Surplus	20,192.59
Guaranty fund	25,000.00

\$757,537.12

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$375,580.81	\$375,580.81	\$375,580.81
Loans on personal security.....	161,530.17	161,530.17	161,530.17
Loans on collateral security.....	78,695.93	78,695.93	78,695.93
County, city, town, and district bonds.....	28,345.00	27,500.00	26,775.00
Bank stock.....	60,217.00	45,100.00	49,766.67
Other investments.....	33,580.00	34,000.00	33,210.00
Balance on deposit in Littleton National Bank.....	29,769.84	29,769.84	29,769.84
Balance on deposit in National Bank of the Commonwealth, Boston, Mass.....	1,852.37	1,852.37	1,852.37
Cash	356.33	356.33	356.33
	\$769,927.45	\$754,385.45	\$757,537.12

Condition of the Loan and Trust Savings Bank, of Concord, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$1,844,374.78
Surplus.....	91,480.75
Guaranty fund.....	60,000.00

\$1,995,855.53

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$987,599.00	\$987,599.00	\$987,599.00
Loans on personal security.....	156,851.92	156,851.92	156,851.92
Loans on collateral security.....	184,419.50	184,419.50	184,419.50
United States bonds.....	11,000.00	10,000.00	10,250.00
State bonds.....	15,800.00	15,000.00	15,300.00
County, city, town, and district bonds.....	262,495.00	250,438.15	250,776.03
Bank stock.....	52,450.00	37,600.00	42,851.75
Railroad stock.....	25,000.00	10,000.00	20,000.00
Railroad bonds.....	98,450.00	90,000.00	92,837.50
Manufacturing stocks.....	12,700.00	12,700.00	12,000.00
Other investments.....	194,965.00	191,500.00	191,260.00
Real estate acquired or held by foreclosure.....	9,437.94	9,437.94	9,437.94
Balance on deposit in Blackstone Bank, Boston.....	12,258.40	12,258.40	12,258.40
Balance on deposit in National State Capital Bank, Concord.....	4,224.18	4,224.18	4,224.18
Expense.....	3,992.64	3,992.64	3,992.64
Cash	1,796.67	1,796.67	1,796.67
	\$2,033,440.25	\$1,977,818.40	\$1,995,855.52

Condition of the Manchester Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$4,781,868.06
Surplus.....	265,046.58
Guaranty fund.....	210,000.00
	<hr/>
	\$5,256,914.64

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,900,664.72	\$1,900,664.72	\$1,900,664.72
Loans on personal security.....	748,845.21	748,845.21	748,845.21
Loans on collateral security.....	1,017,708.48	1,017,708.48	1,017,708.48
United States bonds.....	119,000.00	100,000.00	100,000.00
State bonds.....	31,250.00	25,000.00	24,000.00
County, city, town, and district bonds.....	373,623.65	341,763.65	342,111.15
Bank stock.....	79,424.00	65,780.00	65,124.75
Railroad stock.....	119,660.00	83,100.00	84,600.00
Railroad bonds.....	813,250.00	754,500.00	748,069.67
Manufacturing stocks.....	59,500.00	42,500.00	57,500.00
Other investments.....	166,400.00	160,000.00	162,887.50
Real estate acquired or held by foreclosure.....	3,900.00	3,900.00	3,900.00
Balance on deposit in Manchester National Bank.....	1,503.16	1,503.16	1,503.16
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	\$5,434,729.22	\$5,245,265.22	\$5,256,914.64

Condition of the Mason Village Savings Bank, of Greenville, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$73,740.96
Surplus.....	7,925.61
Guaranty fund.....	4,000.00
	<hr/>
	\$85,666.57

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$17,535.00	\$17,535.00	\$17,535.00
Loans on personal security.....	3,410.00	3,410.00	3,410.00
Loans on collateral security.....	614.00	614.00	614.00
County, city, town, and district bonds.....	17,505.00	17,000.00	16,872.50
Bank stock.....	9,450.00	8,400.00	8,470.00
Railroad stock.....	12,795.00	18,000.00	16,776.25
Railroad bonds.....	19,585.00	17,000.00	16,671.88
Other investments (New Hampshire Fire Insurance Co. stock)...	3,000.00	2,000.00	2,000.00
Balance on deposit with International Trust Co.....	2,179.53	2,179.53	2,179.53
Cash.....	1,137.41	1,137.41	1,137.41
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	\$87,210.94	\$87,275.94	\$85,666.57

Condition of the Mechanics' Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$243,362.22
Surplus	8,202.88
Guaranty fund.....	6,212.94
Overdraft.....	734.41
	<u>\$258,512.45</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$136,718.52	\$136,718.52	\$136,718.52
Loans on personal security.....	39,860.47	39,860.47	39,860.47
Loans on collateral security	19,262.77	19,262.77	19,262.77
United States bonds.....	1,354.50	1,050.00	1,050.00
Bank stock.....	28,750.00	25,000.00	25,000.00
Railroad stock.....	3,100.00	5,000.00	4,756.25
Railroad bonds.....	19,870.00	18,000.00	19,864.44
Manufacturing stocks.....	2,385.00	1,000.00	2,000.00
Other investments.....	10,000.00	10,000.00	10,000.00
	<u>\$261,301.26</u>	<u>\$255,891.76</u>	<u>\$258,512.45</u>

Condition of the Mechanics' Savings Bank, of Nashua, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$470,538.32
Surplus.....	16,572.24
Guaranty fund.....	8,500.00
Due Second National Bank.....	9,000.00
	<u>\$504,610.56</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$311,457.59	\$311,457.59	\$311,457.59
Loans on personal security.....	98,065.11	98,065.11	98,065.11
Loans on collateral security.....	350.00	350.00	350.00
County, city, town, and district bonds.....	23,394.30	26,344.30	26,034.30
Bank stock.....	29,450.00	27,200.00	28,250.00
Railroad bonds.	300.00	3,300.00	2,980.00
Manufacturing stocks.	3,750.00	3,000.00	3,125.00
Other investments.....	33,715.46	33,665.46	33,715.46
Cash	633.10	633.10	633.10
	<u>\$501,115.56</u>	<u>\$504,015.56</u>	<u>\$504,610.56</u>

Condition of the Meredith Village Savings Bank, of Meredith Village, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$405,109.44
Surplus.....	19,529.01
Guaranty fund.....	20,000.00
	<u>\$444,638.45</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$422,267.97	\$422,267.97	\$422,267.97
Loans on personal security.....	8,356.98	8,356.98	8,356.98
Loans on collateral security.....	1,320.00	1,320.00	1,320.00
County, city, town, and district bonds.....	5,649.00	4,000.00	3,850.00
Railroad stock.....	200.00	400.00	200.00
Railroad bonds.....	6,772.00	6,000.00	5,390.00
Manufacturing stocks.....	700.00	1,400.00	700.00
Real estate acquired or held by foreclosure.....	2,275.51	2,275.51	2,275.51
Balance on deposit in First National Bank, Boston.	197.03	197.03	197.03
Cash.....	80.96	80.96	80.96
	<u>\$447,819.45</u>	<u>\$446,298.45</u>	<u>\$444,638.45</u>

Condition of the Merrimack County Savings Bank, of Concord, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$958,298.20
Surplus.....	30,400.27
Guaranty fund.....	40,000.00
	<u>\$1,028,698.47</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$432,645.50	\$432,645.50	\$432,645.50
Loans on personal security.....	71,126.00	71,126.00	71,126.00
Loans on collateral security.....	57,647.87	57,647.87	57,647.87
County, city, town, and district bonds.	82,370.00	77,750.00	77,780.00
Bank stock.....	18,870.00	10,200.00	15,910.00
Railroad stock.....	80,930.00	67,500.00	65,876.75
Railroad bonds.....	196,690.00	178,000.00	179,315.00
Manufacturing stocks.....	840.00	800.00	800.00
Other investments.....	122,400.00	113,400.00	115,200.00
Real estate acquired or held by foreclosure.....	2,800.00	2,800.00	2,800.00
Cash.....	9,597.35	9,597.35	9,597.35
	<u>\$1,075,916.72</u>	<u>\$1,021,466.72</u>	<u>\$1,028,698.47</u>

Condition of the Merrimack River Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$2,256,725.88
Surplus.....	73,508.73
Guaranty fund.....	110,000.00

\$2,440,234.61

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$686,886.94	\$686,886.94	\$686,886.94
Loans on personal security.....	91,076.25	91,076.25	91,076.25
Loans on collateral security.....	101,219.02	101,219.02	101,219.02
County, city, town, and district bonds.....	622,270.50	559,500.00	529,911.16
Bank stock.....	127,028.00	102,900.00	120,266.88
Railroad stock.....	91,320.00	63,500.00	63,500.00
Railroad bonds.....	867,260.00	775,500.00	784,537.50
Manufacturing stocks.....	5,260.00	2,600.00	2,345.00
Other investments.....	45,900.00	45,900.00	45,900.00
Balance on deposit in First National Bank.....	9,714.07	9,714.07	9,714.07
Balance on deposit with Tower, Giddings & Co.....	3,276.36	3,276.36	3,276.36
Topeka scrip.....	1,601.43	1,601.43	1,601.43
	<u>\$2,652,812.57</u>	<u>\$2,443,674.07</u>	<u>\$2,440,234.61</u>

Condition of the Milford Five-Cent Savings Institution, of Milford, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$969,166.48
Surplus.....	28,208.77
Guaranty fund.....	38,000.00

\$1,035,375.25

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$681,622.51	\$681,622.51	\$681,622.51
Loans on collateral security.....	16,025.00	16,025.00	16,025.00
County, city, town, and district bonds.....	238,268.00	245,600.00	245,600.00
Bank stock.....	25,140.00	21,200.00	21,200.00
Railroad stock.....	450.00	600.00	600.00
Railroad bonds.....	9,970.00	9,000.00	9,000.00
Other investments.....	38,625.00	38,500.00	38,500.00
Real estate.....	3,000.00	3,000.00	3,000.00
Real estate acquired or held by foreclosure.....	1,984.92	1,984.92	1,984.92
Balance on deposit in Souhegan Bank.....	17,638.49	17,638.49	17,638.49
Cash.....	204.33	204.33	204.33
	<u>\$1,032,928.25</u>	<u>\$1,035,375.25</u>	<u>\$1,035,375.25</u>

Condition of the Monadnock Savings Bank, of Jaffrey, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$456,461.08
Surplus	6,613.98
Guaranty fund.....	15,152.92
	<u>\$478,227.98</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$304,301.26	\$304,301.26	\$304,301.26
Loans on personal security.....	4,925.00	4,925.00	4,925.00
Loans on collateral security.....	16,725.00	16,725.00	16,725.00
County, city, town, and district bonds.....	43,980.00	41,300.00	40,470.00
Bank stock.....	18,760.00	16,200.00	19,362.62
Railroad bonds.....	41,730.00	39,500.00	39,877.52
Other investments.....	43,950.00	43,000.00	43,000.00
Real estate acquired or held by foreclosure.....	2,219.19	2,219.19	2,219.19
Bank fixtures.....	1,850.00	1,850.00	1,850.00
Balance on deposit in Monadnock National Bank.....	5,497.39	5,497.39	5,497.39
	<u>\$483,937.84</u>	<u>\$475,517.84</u>	<u>\$478,227.98</u>

Condition of the Nashua Savings Bank, of Nashua, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$2,776,003.08
Surplus.....	96,886.75
Guaranty fund.....	130,000.00
	<u>\$3,002,889.83</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,122,931.17	\$1,122,931.17	\$1,122,931.17
Loans on personal security.....	39,125.00	39,125.00	39,125.00
Loans on collateral security.....	33,807.00	33,807.00	33,807.00
United States bonds.....	10,950.00	10,000.00	10,000.00
Miscellaneous bonds.....	354,400.00	353,500.00	351,525.00
County, city, town, and district bonds.....	311,730.00	303,030.00	304,323.61
Bank stock.....	379,807.50	299,990.00	300,650.00
Railroad stock.....	279,630.00	281,600.00	273,804.79
Railroad bonds.....	322,470.00	301,500.00	301,500.00
Other investments.....	314,325.12	222,425.12	221,225.12
Balance on deposit in Indian Head Bank.....	17,817.33	17,817.33	17,817.33
Balance on deposit with International Trust Co.....	8,057.46	8,057.46	8,057.46
Cash	18,123.35	18,123.35	18,123.35
	<u>\$3,213,173.93</u>	<u>\$3,011,906.43</u>	<u>\$3,002,889.83</u>

Condition of the New Hampshire Banking Company, of Nashua, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$763,643.93
Surplus	53,576.73
Guaranty fund paid in.....	100,000.00
Premiums received.....	3,091.93
Unpaid dividends (on guaranty fund).....	36.55
Credit balances	2,224.90
	<u>\$922,574.04</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$679,892.96	\$679,892.96	\$679,892.96
Loans on personal security.....	54,301.52	54,301.52	54,301.52
Loans on collateral security.....	27,919.34	27,919.34	27,919.34
County, city, town, and district bonds	78,825.00	80,505.00	77,755.00
Bank stock.....	27,625.00	24,000.00	24,000.00
Railroad stock	2,090.00	8,100.00	1,920.00
Railroad bonds.....	9,110.00	4,700.00	8,100.00
Other investments.....	26,850.00	29,050.00	26,900.00
Real estate acquired.....	8,222.38	8,222.38	8,222.38
Balance on deposit in national banks.....	12,279.29	12,279.29	12,279.29
Cash	1,283.55	1,283.55	1,283.55
	<u>\$928,399.04</u>	<u>\$930,254.04</u>	<u>\$922,574.04</u>

Condition of the New Hampshire Savings Bank, in Concord, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$2,825,089.16
Surplus.....	120,541.07
Guaranty fund	150,000.00
	<u>\$3,095,630.23</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$648,760.00	\$648,760.00	\$648,760.00
Loans on personal security.....	93,680.00	93,680.00	93,680.00
Loans on collateral security.....	104,715.00	104,715.00	104,715.00
United States bonds.....	33,950.00	30,000.00	30,000.00
State bonds.....	34,730.00	31,000.00	31,000.00
County, city, town, and district bonds.....	481,720.00	440,000.00	440,000.00
Bank stock.....	9,925.00	6,700.00	6,700.00
Railroad stock	226,146.00	179,900.00	172,205.00
Railroad bonds.....	1,219,670.00	1,090,500.00	1,090,500.00
Manufacturing stocks.....	51,880.00	53,800.00	50,800.00
Other investments.....	377,597.00	375,097.00	375,097.00
Real estate	28,884.22	28,884.22	28,884.22
Real estate acquired or held by foreclosure	3,000.00	2,300.00	2,300.00
Balance on deposit in First National Bank, Boston, Mass.....	7,006.59	7,006.59	7,006.59
Cash.....	13,982.42	13,982.42	13,982.42
	<u>\$3,335,646.23</u>	<u>\$3,106,325.23</u>	<u>\$3,095,630.23</u>

Condition of the New Ipswich Savings Bank, of New Ipswich,
at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$71,254.32
Surplus	6,993.31
Guaranty fund.....	3,400.00
	<u>\$81,647.63</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$54,037.00	\$54,037.00	\$54,037.00
Loans on personal security.....	963.00	963.00	963.00
Railroad bonds.....	10,800.00	9,000.00	9,000.00
Other investments.....	305.32	305.32	305.32
Real estate	1,000.00	1,000.00	1,000.00
Real estate acquired or held by foreclosure.....	11,087.00	11,087.00	11,087.00
Balance on deposit in Townsend National Bank.....	4,781.15	4,781.15	4,781.15
Cash	474.16	474.16	474.16
	<u>\$83,447.63</u>	<u>\$81,647.63</u>	<u>\$81,647.63</u>

Condition of the Newmarket Savings Bank, of Newmarket, at
close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$179,820.40
Surplus.....	1,180.95
Guaranty fund.....	1,000.00
	<u>\$182,001.35</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$45,519.06	\$45,519.06	\$45,519.06
Loans on personal security.....	50,599.42	50,599.42	50,599.42
Loans on collateral security.....	11,090.92	11,090.92	11,090.92
Bank stock.....	16,720.00	16,200.00	16,200.00
Manufacturing stocks.....	1,000.00	1,000.00	1,000.00
Other investments.....	1,500.00	1,500.00	1,500.00
Real estate acquired or held by foreclosure.....	39,577.35	39,577.35	39,577.35
Balance on deposit in Newmarket National Bank.....	1,351.52	1,351.52	1,351.52
Personal property at Lawrence, Mass.....	4,463.08	4,463.08	4,463.08
Debenture bonds.....	10,700.00	10,700.00	10,700.00
	<u>\$182,521.35</u>	<u>\$182,001.35</u>	<u>\$182,001.35</u>

Condition of the Newport Savings Bank, of Newport, at close of business, April 1, 1887.

Liabilities.

Due depositors	\$450,627.11
Surplus	15,610.52
Guaranty fund.....	23,000.00

\$489,237.63

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$245,364.23	\$245,364.23	\$245,364.23
Loans on personal security.....	20,887.50	20,887.50	20,887.50
Loans on collateral security.....	33,600.00	33,600.00	33,600.00
State bonds.....	230.00	200.00	200.00
County, city, town, and district bonds.....	49,900.00	46,600.00	46,600.00
Bank stock.	24,175.00	19,000.00	22,509.33
Railroad stock.....	66,700.00	51,300.00	50,603.00
Railroad bonds.....	31,500.00	29,000.00	28,600.00
Loans to States, counties, and towns.....	750.00	750.00	750.00
Other investments.....	12,500.00	12,500.00	12,500.00
Real estate acquired or held by foreclosure.....	935.00	935.00	935.00
Balance on deposit in First National Bank.....	23,375.71	23,375.71	23,375.71
Cash in hands of collecting att'y...	3,312.86	3,312.86	3,312.86
	\$513,230.30	\$486,825.30	\$489,237.63

Condition of the Norway Plains Savings Bank, of Rochester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$602,712.66
Surplus	11,764.11
Guaranty fund	2,183.64

\$616,660.41

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$83,650.00	\$83,650.00	\$83,650.00
Loans on personal security.....	105,266.75	105,266.75	105,266.75
Loans on collateral security.....	46,700.02	46,700.02	46,700.02
County, city, town, and district bonds.....	151,000.00	137,500.00	139,600.00
Bank stock.	10,758.00	8,400.00	8,400.00
Railroad bonds.....	160,810.00	138,000.00	146,652.50
Other investments.....	20,000.00	20,000.00	20,000.00
Real estate.....	5,635.74	5,635.74	5,635.74
Real estate acquired or held by foreclosure.....	46,213.64	46,213.64	46,213.64
Balance on deposit in Rochester National Bank	14,541.76	14,541.76	14,541.76
	\$644,575.91	\$605,907.91	\$616,660.41

Condition of the Ossipee Valley Ten-Cent Savings Bank, of Freedom, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$139,535.70
Surplus.....	3,270.66
Guaranty fund.....	5,000.00
	<u>\$147,806.36</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$51,225.04	\$51,225.04	\$51,225.04
Loans on personal security.....	87,883.24	87,883.24	87,883.24
Loans on collateral security.....	6,061.38	6,061.38	6,061.38
Bank stock.....	1,365.00	1,300.00	1,300.00
Bank fixtures.....	400.00	400.00	400.00
Balance on deposit in nat. bank....	455.30	455.30	455.30
Cash.....	481.40	481.40	481.40
	<u>\$147,871.36</u>	<u>\$147,806.36</u>	<u>\$147,806.36</u>

Condition of the People's Savings Bank, of Manchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$692,608.47
Surplus.....	63,530.22
Guaranty fund.....	100,000.00
	<u>\$856,138.69</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$723,232.60	\$723,232.60	\$723,232.60
Loans on personal security.....	41,064.02	41,064.02	41,064.02
Loans on collateral security... ..	12,150.00	12,150.00	12,150.00
United States bonds.....	25,800.00	20,000.00	20,000.00
Railroad bonds.....	13,500.00	11,000.00	11,000.00
Other investments.....	5,000.00	5,000.00	5,000.00
Real estate acquired or held by foreclosure.....	5,000.00	5,000.00	5,000.00
Balance on deposit in Amoskeag National Bank.....	4,868.33	4,868.33	4,868.33
Cash.....	33,823.69	33,823.69	33,823.69
	<u>\$864,438.69</u>	<u>\$856,138.69</u>	<u>\$856,138.69</u>

Condition of the Peterborough Savings Bank, of Peterborough,
at close of business, April 1, 1887.

Liabilities.

Due depositors.....	\$639,036.61
Surplus.....	16,441.81
Guaranty fund.....	26,408.64
Suspense account.....	72.40
	<hr/>
	\$681,959.46

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$330,975.74	\$330,975.74	\$330,975.74
Loans on personal security.....	17,619.10	17,619.10	17,619.10
Loans on collateral security.....	20,074.00	20,074.00	20,074.00
County, city, town, and district bonds.....	102,925.00	99,200.00	86,603.00
Bank stock.....	71,839.00	58,000.00	64,966.00
Railroad stock.....	70,967.50	74,900.00	69,175.28
Railroad bonds.....	61,377.00	56,250.00	54,332.09
Other investments.....	12,625.00	9,750.00	12,249.55
Real estate.....	15,388.62	15,388.62	15,388.62
Real estate acquired or held by foreclosure.....	2,717.00	1,042.51	1,042.51
Bank fixtures.....	1,000.00	1,000.00	1,000.00
Balance on deposit in First National Bank, Peterborough.....	1,090.47	1,090.47	1,090.47
Cash.....	7,443.10	7,443.10	7,443.10
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	\$716,041.53	\$692,733.54	\$681,959.46

Condition of the Piscataqua Savings Bank, of Portsmouth, at
close of business, March 31, 1887.

Liabilities.

Due depositors	\$451,725.57
Surplus.....	9,822.02
Guaranty fund.....	6,000.00
	<hr/>
	\$467,547.59

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$212,575.82	\$212,575.82	\$212,575.82
Loans on personal security.....	15,152.92	15,152.92	15,152.92
Loans on collateral security.....	48,290.27	48,290.27	48,290.27
County, city, town, and district bonds.....	150,052.52	145,408.52	147,448.67
Bank stock.....	41,574.00	30,700.00	41,657.13
Balance on deposit in First National Bank, Portsmouth.....	1,661.93	1,661.93	1,661.93
Cash	760.85	760.85	760.85
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	\$470,068.31	\$454,550.31	\$467,547.59

Condition of the Pittsfield Savings Bank, of Pittsfield, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$290,300.72
Surplus	3,784.69
Guaranty fund.....	6,500.00

\$300,585.41

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$164,607.89	\$164,607.89	\$164,607.89
Loans on personal security.....	30,356.85	30,356.85	30,356.85
Loans on collateral security.....	43,216.00	43,216.00	43,216.00
County, city, town, and district bonds.....	9,704.00	9,425.00	9,545.00
Bank stock.....	700.00	500.00	500.00
Railroad stock.....	2,250.00	4,450.00	2,250.00
Railroad bonds.....	19,580.00	18,500.00	18,500.00
Other investments.....	24,125.00	24,100.00	24,050.00
Real estate and bank fixtures.....	4,257.64	4,257.64	4,257.64
Balance on deposit in Merchants' Bank of Manchester, N. H.....	2,685.64	2,685.64	2,685.64
Cash	616.39	616.39	616.39
	\$302,099.41	\$302,715.41	\$300,585.41

Condition of the Portsmouth Savings Bank, of Portsmouth, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$3,310,197.43
Surplus	149,573.91
Guaranty fund.....	162,924.10
Reserve for state tax	16,000.00
Balance of interest account.....	52,041.86

\$3,690,737.30

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$1,846,411.29	\$1,846,411.29	\$1,846,411.29
Loans on personal security.....	78,387.19	78,387.19	78,387.19
Loans on collateral security.....	95,083.02	95,083.02	95,083.02
United States bonds.....	126,000.00	107,000.00	107,000.00
County, city, town, and district bonds.....	868,069.18	837,910.18	818,595.02
Bank stock.....	42,344.50	33,900.00	39,767.50
Railroad stock.....	8,000.00	49,600.00	12,000.00
Other investments.....	571,263.37	569,313.37	553,673.62
Real estate.....	10,000.00	10,000.00	10,000.00
Real estate acquired or held by foreclosure.....	76,559.77	76,559.77	76,559.77
Balance on deposit in nat. bank....	47,451.07	47,451.07	47,451.07
Cash	5,808.82	5,808.82	5,808.82
	\$3,775,378.21	\$3,757,424.71	\$3,690,737.30

Condition of the Portsmouth Trust and Guaranty Company, of Portsmouth, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$431,543.74
Surplus.....	5,897.45
Guaranty fund....	100,000.00
Interest.....	9,223.75
	<u>\$546,664.94</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$293,055.64	\$293,055.64	\$291,898.14
Loans on personal security.....	15,590.00	15,590.00	15,590.00
Loans on collateral security.....	740.00	740.00	740.00
County, city, town, and district bonds.....	98,327.17	97,617.17	97,082.58
Bank stock.....	3,175.00	2,900.00	3,175.00
Railroad stock.....	15,365.00	14,700.00	12,450.00
Railroad bonds.....	45,500.00	45,500.00	45,000.00
Other investments.....	32,550.51	32,550.51	32,550.51
Real estate acquired or held by foreclosure.....	45,140.79	45,140.79	45,140.79
Balance on deposit in national bank.....	1,374.38	1,374.38	1,374.38
Cash.....	1,663.54	1,663.54	1,663.54
	<u>\$552,482.03</u>	<u>\$550,832.03</u>	<u>\$546,664.94</u>

Condition of the Rochester Savings Bank, of Rochester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$381,432.78
Surplus.....	18,915.63
Guaranty fund.....	7,192.54
	<u>\$407,540.95</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$250,167.47	\$250,167.47	\$250,167.47
Loans on personal security.....	82,127.65	82,127.65	82,127.65
Loans on collateral security.....	30,250.12	30,250.12	30,250.12
Bank stock.....	10,000.00	10,000.00	10,000.00
Manufacturing stocks.....	5,000.00	5,000.00	5,000.00
Real estate acquired or held by foreclosure.....	14,559.21	14,559.21	14,559.21
Balance on deposit in National Exchange Bank, Boston.....	1,058.78	1,058.78	1,058.78
Cash.....	14,377.72	14,377.72	14,377.72
	<u>\$407,540.95</u>	<u>\$407,540.95</u>	<u>\$407,540.95</u>

Condition of the Rollinsford Savings Bank, of Salmon Falls, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$555,216.78
Surplus.....	70,543.10
Guaranty fund.....	25,000.00
	<hr/>
	\$650,759.88

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$226,835.00	\$226,835.00	\$226,835.00
Loans on personal security.....	70,773.32	70,773.32	70,773.32
Loans on collateral security.....	14,079.00	14,079.00	14,079.00
County, city, town, and district bonds.....	154,800.00	160,300.00	151,550.00
Bank stock.....	63,820.00	55,200.00	54,420.00
Railroad bonds.....	57,300.00	66,000.00	56,800.00
Other investments.....	600.00	600.00	600.00
Real estate acquired or held by foreclosure.....	46,047.66	66,047.66	66,047.66
Balance on deposit in Salmon Falls Bank.....	9,654.90	9,654.90	9,654.90
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	\$643,909.88	\$669,489.88	\$650,759.88

Condition of the Sandwich Savings Bank, of Center Sandwich, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$71,225.08
Surplus.....	2,876.37
Guaranty fund.....	1,526.16
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	\$75,627.61

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$28,705.33	\$28,705.33	\$28,705.33
Loans on personal security.....	1,879.50	1,879.50	1,879.50
Loans on collateral security.....	6,162.16	6,162.16	6,162.16
County, city, town, and district bonds.....	24,626.66	23,000.00	22,640.41
Railroad stock.....	5,040.00	5,040.00	5,040.00
Railroad bonds.....	5,000.00	6,000.00	5,930.00
Real estate acquired or held by foreclosure.....	2,817.60	2,817.60	2,817.60
Bank fixtures.....	350.00	350.00	350.00
Balance on deposit in Maverick National Bank, Boston.....	1,069.28	1,069.28	1,069.28
Cash.....	983.33	983.33	983.33
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	\$76,633.86	\$76,007.20	\$75,627.61

Condition of the Savings Bank for the County of Strafford, of Dover, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$3,278,408.09
Surplus.....	56,714.27
Guaranty fund.....	180,574.25
	<u>\$3,515,696.61</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$570,836.15	\$570,836.15	\$570,836.15
Loans on personal security.....	33,132.00	33,132.00	33,132.00
Loans on collateral security.....	390,050.00	390,050.00	390,050.00
County and city bonds.....	1,363,180.00	1,241,500.00	1,242,992.50
Bank stock.....	24,000.00	15,000.00	15,000.00
Railroad stock.....	185,130.00	89,100.00	79,386.09
Railroad bonds.....	1,259,995.00	1,097,000.00	1,141,513.75
Other investments.....	11,000.00	11,000.00	10,250.00
Real estate acquired or held by foreclosure.....	15,952.80	15,952.80	15,952.80
Balance on deposit in Strafford National Bank.....	16,405.65	16,405.65	16,405.65
Cash.....	177.67	177.67	177.67
	<u>\$3,869,859.27</u>	<u>\$3,480,154.27</u>	<u>\$3,515,696.61</u>

Condition of the Security Savings Bank, of Winchester, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$166,250.80
Surplus.....	5,903.73
Guaranty fund.....	2,625.00
	<u>\$174,779.53</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$121,717.08	\$121,717.08	\$121,717.08
Loans on personal security.....	11,643.90	11,643.90	11,643.90
Loans on collateral security.....	9,400.00	9,400.00	9,400.00
County, city, town, and district bonds.....	10,655.00	9,710.00	9,710.00
Bank stock.....	7,370.00	6,700.00	7,370.00
Other investments.....	13,910.00	12,600.00	12,900.00
Real estate acquired or held by foreclosure.....	1,300.00	1,300.00	1,300.00
Balance on deposit in Winchester National Bank.....	738.55	738.55	738.55
	<u>\$176,734.53</u>	<u>\$173,809.53</u>	<u>\$174,779.53</u>

Condition of the Somersworth Savings Bank, of Somersworth, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$912,216.86
Surplus.....	40,855.68
Guaranty fund.....	28,000.00
	<hr/>
	\$981,072.54

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$125,108.05	\$126,837.05	\$126,837.05
Loans on personal security.....	55,624.91	55,624.91	55,624.91
Loans on collateral security.....	58,329.50	58,329.50	58,329.50
State bonds.....	21,000.00	20,000.00	20,000.00
County, city, town, and district bonds.....	416,952.00	398,000.00	398,000.00
Bank stock.....	66,900.00	46,040.00	46,040.00
Railroad bonds.....	183,527.50	164,650.00	164,650.00
Real estate.....	48,000.00	68,070.14	68,070.14
Real estate acquired or held by foreclosure.....	12,000.00	22,350.00	22,350.00
Cash.....	21,170.94	21,170.94	21,170.94
	<hr/>	<hr/>	<hr/>
	\$1,008,612.90	\$981,072.54	\$981,072.54

Condition of the Squamscott Savings Bank, of Exeter, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$26,628.19
Surplus.....	2,660.03
Guaranty fund.....	733.00
	<hr/>
	\$30,021.22

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$24,685.75	\$24,685.75	\$24,685.75
Loans on personal security.....	1,300.00	1,300.00	1,300.00
Loans on collateral security.....	2,000.00	2,000.00	2,000.00
Bank stock.....	475.00	500.00	475.00
Balance on deposit in nat. bank....	1,200.00	1,200.00	1,200.00
Cash.....	360.47	360.47	360.47
	<hr/>	<hr/>	<hr/>
	\$30,021.22	\$30,046.22	\$30,021.22

Condition of the Sullivan Savings Institution, of Claremont, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$1,193,860.15
Surplus.....	25,328.44
Guaranty fund.....	60,000.00
	<u>\$1,279,188.59</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$772,765.02	\$772,765.02	\$772,765.02
Loans on personal security.....	53,180.26	53,180.26	53,180.26
Loans on collateral security.....	69,097.10	69,097.10	69,097.10
Bank stock	68,550.00	46,500.00	58,664.00
Railroad stock	48,545.00	72,100.00	41,650.00
Railroad bonds	266,850.00	264,500.00	235,763.65
Other investments.....	36,100.00	38,300.00	36,100.00
Real estate	10,000.00	14,000.00	3,000.00
Real estate acquired or held by foreclosure.....	4,070.00	4,070.00	4,070.00
Balance on deposit in Claremont National Bank	4,000.00	4,000.00	4,000.00
Cash	898.56	898.56	898.56
	<u>\$1,334,055.94</u>	<u>\$1,339,410.94</u>	<u>\$1,279,188.59</u>

Condition of the Union Five-Cent Savings Bank, of Exeter, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$366,240.57
Surplus.....	2,763.63
	<u>\$369,004.20</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$202,486.33	\$202,486.33	\$202,486.33
Loans on personal security.....	30,124.42	30,124.42	30,124.42
Loans on collateral security.....	10,845.00	10,845.00	10,845.00
County, city, town, and district bonds	83,437.50	74,500.00	74,500.00
Bank stock	7,968.50	7,200.00	7,200.00
Railroad stock	8,430.00	7,500.00	6,500.00
Manufacturing stocks	4,900.00	4,900.00	4,080.00
Other investments.....		20,000.00	20,000.00
Real estate acquired or held by foreclosure.....	5,000.00	6,364.72	6,364.72
Bank fixtures.....	1,180.00	1,180.00	1,180.00
Balance on deposit in Howard Na- tional Bank	2,643.34	2,643.34	2,643.34
Cash	3,080.39	3,080.39	3,080.39
	<u>\$360,095.48</u>	<u>\$370,824.20</u>	<u>\$369,004.20</u>

Condition of the Walpole Savings Bank, of Walpole, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$147,098.69
Surplus	4,722.64
Guaranty fund	5,900.00
	<u>\$157,721.33</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$92,427.50	\$92,427.50	\$92,427.50
Loans on personal security	7,649.14	7,649.14	7,649.14
Loans on collateral security.....	2,502.10	2,502.10	2,502.10
County, city, town, and district bonds.....	16,134.00	15,500.00	15,600.00
Bank stock	5,700.00	5,000.00	5,000.00
Railroad bonds.....	21,615.00	19,000.00	19,610.00
Manufacturing stocks	2,812.50	2,500.00	2,750.00
Other investments.....	7,500.00	7,500.00	7,500.00
Real estate acquired or held by foreclosure.....	4,000.00	4,000.00	4,000.00
Balance on deposit in Keene National Bank.....	682.59	682.59	682.59
	<u>\$161,022.83</u>	<u>\$156,761.33</u>	<u>\$157,721.33</u>

Condition of the Wilton Savings Bank, of Wilton, at close of business, March 31, 1887.

Liabilities.

Due depositors.....	\$83,262.04
Surplus.....	8,508.09
Guaranty fund.....	4,000.00
	<u>\$95,770.13</u>

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$73,472.21	\$73,472.21	\$73,472.21
Loans on personal security.....	3,654.58	3,654.58	3,654.58
County, city, town, and district bonds.....	4,550.00	7,000.00	6,971.57
Bank stock.....	5,150.00	5,150.00	5,150.00
Real estate and bank fixtures	2,500.00	2,500.00	2,500.00
Balance on deposit in Souhegan National Bank....	1,329.17	1,329.17	1,329.17
Rent due.....	150.00	150.00	150.00
Cash in Scott & Brier's hands	2,542.60	2,542.60	2,542.60
	<u>\$93,348.56</u>	<u>\$95,798.56</u>	<u>\$95,770.13</u>

Condition of the Wolfeborough Savings Bank, of Wolfeborough,
at close of business, March 31, 1887.

Liabilities.

Due depositors	\$117,969.47
Surplus	17,960.63
Guaranty fund	1,550.00
	<hr/>
	\$137,480.10

Resources.

	Market Value.	Par Value.	Value on Books.
Loans on real estate.....	\$66,688.16	\$66,688.16	\$66,688.16
Loans on personal security.....	34,535.18	34,535.18	34,535.18
Loans on collateral security.....	11,900.96	11,900.96	11,900.96
Bank stock.....	9,030.00	8,400.00	8,595.00
Other investments.....	4,429.00	4,300.00	4,300.00
Bank fixtures.....	600.00	600.00	600.00
Balance on deposit in Lake Na- tional Bank.....	1,589.54	1,589.54	1,589.54
Balance on deposit with Interna- tional Trust Co., Boston.....	7,118.82	7,118.82	7,118.82
Cash	2,152.44	2,152.44	2,152.44
	<hr/>	<hr/>	<hr/>
	\$138,044.10	\$137,285.10	\$137,480.10

SAVINGS BANKS IN CHARGE OF ASSIGNEES.

CHINA SAVINGS BANK.—REPORT BY THE ASSIGNEE TO FEBRUARY 18, 1887.

To the Bank Commissioners of the State of New Hampshire :

The assignee of China Savings Bank makes report that he has realized in cash from the assets of the bank to Feb. 18, 1887, as follows :

Cash received from E. H. Paine, and cash on deposit in Maverick National Bank	\$4,788.71
From Western mortgages, principal and interest	77,989.85
From bonds, principal and interest	17,469.06
From local mortgages, principal and interest	36,281.29
From notes with personal security, principal and interest	18,789.05
From notes with collateral security, principal and interest	5,350.39
From sale of real estate owned by the bank	991.07
From interest on deposits, etc.	711.89
Total	<hr/> \$162,371.31

That he has paid as follows :

Paid for expenses in all	\$762.26	
Paid for state taxes	1,966.80	
Paid to creditors	345.04	
Paid to special depositors	8,836.37	
Amount of first dividend, 28 per cent .	43,880.02	
Amount of second dividend, 22 per cent	34,477.16	
Amount of third dividend, 28 per cent .	43,880.02	
	<hr/>	134,147.67
Balance on hand Feb. 18		<hr/> \$28,223.64

From which he has now paid nearly all of a fourth dividend of 17 per cent.

Respectfully,

JOHN B. HASELTON, *Assignee.*

SUNCOOK, June, 1887.

PENACOOK SAVINGS BANK.—ASSIGNEES' ACCOUNT TO MAY 24, 1887.

To the Bank Commissioners of the State of New Hampshire :

LIABILITIES.

Deposits	\$17,753.07	
First dividend, declared Oct. 1, 1885, of 25 per cent	17,753.07	
Second dividend, declared Aug. 1, 1886, of 25 per cent	17,753.07	
Third dividend, declared May 1, 1887, of 25 per cent	17,753.07	
Interest, or surplus	6,480.30	
Reduction by order of court	42,861.50	
	<hr/>	\$120,354.08

RESOURCES.

	Value on Books.	Estimated Market Value.
Personal notes	\$2,016.94	\$2,016.94
Home mortgages	5,330.00	5,330.00
Western mortgages	10,500.00	10,500.00
City and county bonds	7,000.00	7,000.00
Railroad bonds	2,100.00	1,995.00
Railroad stock	20,700.00	5,940.00
Manufacturing stock	10,000.00	1,100.00
Real estate held by foreclosure	7,910.00	1,285.00
Bank fixtures	2,200.00	700.00
Paid out on first dividend	17,241.68	17,241.68
Paid out on second dividend	16,703.47	16,703.47
Paid out on third dividend	11,430.93	11,430.93
On deposit in First Nat. Bank, Concord	4,580.13	4,580.13
Cash on hand	2,640.93	2,640.93
	<hr/>	<hr/>
	\$120,354.08	\$88,464.08

Respectfully submitted.

EDGAR H. WOODMAN,

SAMUEL F. BROWN,

Assignees of Penacook Savings Bank.

CARROLL COUNTY FIVE-CENT SAVINGS BANK.

JOSHUA G. HALL, }
 WM. A. HEARD, } *Assignees.* JOSEPH F. WIGGIN, *Comm'r.*

To the Bank Commissioners of the State of New Hampshire:

The assignees of the Carroll County Five-Cent Savings Bank submit the following statement of the condition of the affairs of said bank:

On the 26th day of November, 1878, the property and effects of the bank were turned over to us by the Bank Commissioners, and were as follows:

Nominal assets	\$441,424.20
Liabilities	531,452.80

Deficiency	\$90,028.60
Estimated shrinkage by a committee of the trustees .	101,234.64

Upon calling in the deposit-books and verifying the accounts, we found the —

Nominal assets to be	\$443,338.47
Liabilities	537,414.38
Deficiency	94,075.91

Our disbursements have been as follows:

Preferred claims allowed and paid in full	\$63,921.50
Paid depositors on dividend No. 1	118,831.96
“ “ “ No. 2	59,378.55
“ “ “ No. 3	29,634.36
“ “ “ No. 4	30,377.66
Paid state, town, and county taxes	8,213.83
Paid insurance on property of bank	1,090.01
Paid Bank Commissioners	601.30
Paid Mrs. D. C. Rogers, dower	500.00
Paid sundry accounts and expenses of litigation and other expenses	7,397.33
Paid Hall & Heard, assignees, 2½ per cent allowed by court	7,785.84
Now on deposit in National Bank of Redemption .	783.17
Cash on hand	183.91

There are now due and unpaid dividends as follows:

On dividend No. 1	\$22.59
“ “ No. 2	37.43
“ “ No. 3	73.63
“ “ No. 4	409.38
Also 50½ per cent due on \$259.98, general deposit account not adjusted, amounting to	142.98
Amount of available funds, after paying the above sums on dividends, is	283.07

Which would leave the present assets of the bank as follows:

Cash on hand	\$283.07
Land in Tuftonborough, valued at	125.00

Executions <i>vs.</i> sundry persons	\$27,181.86
Amount due on notes, about	100.00
	<hr/>
Making nominal assets	\$27,689.93
	<hr/> <hr/>

The expense of the bank for collections and settlement of its affairs, including the commission allowed to assignees, together with the bond litigation and all other expenses, is less than five per cent on the amount collected.

Respectfully submitted.

JOSHUA G. HALL,
WILLIAM A. HEARD,

JUNE 18, 1887.

Assignees.

ASHUELOT SAVINGS BANK.

To the Bank Commissioners of the State of New Hampshire:

The property and effects of the Ashuelot Savings Bank, of Winchester, that came to the hands of the assignee March 24, 1881, were as follows:

Notes and loans of all kinds	\$193,687.42
Loans from A. Prescott & Co., in transit, received	
April 10	2,050.00
Cash in bank and on deposit	9,330.01
United States coupon bonds, 4s, par value	6,000.00
Real estate held by foreclosure, on books	6,158.61
Iron safe, on books	275.00
	<hr/>
	\$217,501.04

Also received and obtained, by legal process, real and personal estate of the late treasurer, to the amount hereinafter stated.

There existed at that time —

Liabilities to 931 depositors for claims allowed by the commissioner	\$320,244.92
Claims of seven depositors not presented	865.58
	<hr/>
	\$321,110.50

On final settlement, the assignee charges himself as follows :

Cash on hand and on deposit	\$9,330.01
Received for notes and bonds	200,808.25
“ for interest and premiums	13,864.27
“ for real estate held by foreclosure	5,718.37
“ for two iron safes	191.00
“ for envelopes and blanks	4.50
“ of bondsmen of late treasurer	1,350.00
“ proceeds of estate of late treasurer	12,084.06
	<hr/>
	\$243,350.46

The assignee discharges himself as follows :

Paid A. Prescott & Co., balance loan account	\$182.44
“ preferred claims allowed by commissioner	42.50
“ Bank Commissioners	271.00
“ L. W. Coy, commissioner to allow claims	94.15
“ taxes of years 1881 to 1884	2,043.15
“ expenses of litigation	1,571.82
“ for printing and advertising	117.39
“ for services of auctioneer	15.10
“ for cutting grass on Albee homestead, 1881	19.77
“ assignee for commissions, services and expenses	6,262.22
“ 929 depositors first dividend, 60 per cent	192,601.47
“ 905 depositors second dividend, 12½ per cent	40,043.66
“ state treasurer unclaimed dividends	85.79
	<hr/>
	\$243,350.46

March 24, 1881, the assignee took possession of the property and effects of the bank, and paid the state treasurer the unclaimed dividends November 20, 1886 ; and during this period five lawsuits were prosecuted and defended, all resulting in favor of the bank.

The losses, expenses, taxes, commissions, services, and all expenditures in the settlement of the affairs of the bank, were a trifle less than 5 per cent of the amount received by the assignee.

HENRY O. COOLIDGE, *Assignee.*

KEENE, N. H., December 8, 1886.

TABLES.

TABLE No. 1. — Showing the number, condition, and progress of the Savings Banks of New Hampshire in each year from 1850 to 1887, inclusive.

Year.	Number of banks.	Number of depositors.	Amount of deposits.	Increase or decrease in am't of deposits over previous year.	Average to each depositor.	Average to each person in the State.	Population (about).
1850	12	13,031	\$1,641,543.71	Inc. \$76,972.76	\$125.97	\$5.16	318,000
1851	13	14,316	1,776,668.00	135,254.29	124.11	5.58	318,000
1852	15	15,771	2,009,619.42	232,849.42	127.42	6.32	318,000
1853	16	18,105	2,507,909.61	498,292.19	138.52	7.89	318,000
1854	16	20,154	3,222,261.52	714,351.91	159.95	10.13	318,000
1855	17	21,300	3,341,256.81	118,995.29	156.86	10.51	318,000
1856	19	23,489	3,537,363.31	196,106.50	150.59	11.12	318,000
1857	20	27,786	3,748,285.63	210,922.32	151.62	11.79	318,000
1858	21	23,463	3,588,685.23	Dec. 159,627.40	152.94	11.29	318,000
1859	23	26,762	4,138,822.40	Inc. 550,164.17	154.65	13.01	318,000
1860	26	30,828	4,860,024.86	721,202.46	157.65	14.90	326,000
1861	26	35,590	5,590,652.18	730,627.32	157.08	17.14	326,000
1862	27	35,920	5,653,585.46	62,933.28	157.39	17.34	326,000
1863	27	39,358	6,500,308.07	906,722.61	166.68	20.12	326,000
1864	28	43,175	7,661,738.46	1,161,430.39	177.45	25.50	326,000
1865	29	43,572	7,831,335.72	169,596.26	179.33	24.02	326,000
1866	29	42,894	7,857,601.01	26,265.31	183.13	24.47	321,000
1867	28	47,792	10,463,418.50	2,605,817.47	218.77	32.56	321,000
1868	31	55,218	13,541,534.96	3,078,116.46	245.12	42.18	321,000
1869	38	62,931	16,379,867.09	2,838,333.13	260.28	51.02	321,000
1870	45	70,918	18,759,461.05	2,379,593.96	264.52	59.00	318,000
1871	52	77,471	21,472,120.07	2,712,659.02	277.16	67.52	318,000
1872	54	86,790	24,700,774.47	3,228,653.37	284.46	77.06	318,000
1873	61	94,967	29,671,114.88	4,970,340.41	312.45	93.21	318,000
1874	64	92,788	28,829,376.83	Dec. 841,737.35	310.70	90.65	318,000
1875	68	96,938	30,214,585.71	Inc. 1,385,108.88	327.37	93.00	325,000
1876	68	100,191	31,198,064.16	983,478.45	326.01	100.07	325,000
1877	67	97,683	32,338,876.55	1,140,812.39	327.70	99.50	325,000
1878	66	94,967	28,793,947.48	Dec. 1,256,267.10	303.19	91.36	325,000
1879	66	87,279	26,282,136.09	1,991,801.20	301.13	80.87	325,000
1880	67	89,934	28,204,791.70	Inc. 1,922,655.61	313.61	86.78	325,000
1881	64	96,881	32,097,734.17	3,838,126.76	331.31	92.91	346,000
1882	65	104,432	36,181,186.70	4,312,860.10	355.37	103.00	350,000
1883	66	113,167	39,124,814.68	2,943,127.98	345.81	111.78	350,000
1884	67	117,317	42,091,596.55	2,966,781.87	358.78	120.20	350,000
1885	68	121,216	43,827,356.41	1,735,789.86	361.25	125.20	350,000
1886	67	125,273	46,631,913.72	2,804,557.31	372.25	131.85	355,000
1887	66*	132,714	50,292,666.85	3,660,753.13	378.95	141.67	355,000

* New Hampshire Trust Company not included.

TABLE NO. 2. — Exhibiting the amount of loans and investments in New Hampshire, amount of loans and investments in New England, and amount of loans and investments out of New England, of the respective banks at the date of examination.

Number.	NAMES.	Amount of Loans and Investments in New Hampshire.	Amount of Loans and Investments in New England.	Amount of Loans and Investments out of New England.
1	Alton.....	\$56,242.96	\$61,467.23	\$1,576.25
2	Amoskeag.....	1,226,236.23	1,519,387.91	2,055,077.79
3	Ashland.....	42,681.27	42,681.27	23,225.00
4	Belknap.....	270,440.24	317,205.25	443,925.00
5	Bristol.....	58,308.32	68,412.00	459,920.59
6	Cheshire Provident Institution...	772,434.32	797,331.32	1,460,034.32
7	City.....	168,602.73	173,602.73	112,593.41
8	Cocheco.....	133,520.17	133,520.17	106,150.00
9	Connecticut River.....	129,093.68	173,203.68	365,146.23
10	Contoocook Valley.....	8,764.12	8,764.12	18,995.00
11	Conway.....	67,970.88	67,970.88	.....
12	Dartmouth.....	109,168.47	109,168.47	758,246.07
13	Dover Five-Cent.....	92,891.74	97,891.74	91,544.39
14	Epping.....	43,366.69	44,366.69	22,300.00
15	Farmington.....	117,415.24	117,415.24	286,771.38
16	Farmers'.....	22,307.57	22,307.57	18,085.00
17	Fitzwilliam.....	59,556.42	59,556.42	95,593.32
18	Francestown.....	59,309.00	59,309.00	38,615.00
19	Franklin.....	353,042.60	353,042.60	326,570.00
20	Gorham Five-Cent.....	73,616.84	73,616.84	.....
21	Guaranty, Keene.....	41,290.85	41,290.85	560,560.00
22	Guaranty, Manchester.....	217,396.91	243,846.91	598,121.79
23	Hinsdale.....	68,266.75	68,266.75	178,146.51
24	Iona.....	175,964.37	175,964.37	141,180.00
25	Keene Five-Cents.....	424,389.51	445,589.51	1,814,128.27
26	Laconia.....	395,136.05	406,236.05	509,645.45
27	Lake Village.....	62,463.83	66,228.83	183,882.34
28	Lancaster.....	58,389.41	66,426.13	240,134.21
29	Lebanon.....	129,577.38	132,577.38	685,624.71
30	Littleton.....	353,206.80	356,416.80	372,962.22
31	Loan and Trust, Concord.....	593,833.26	610,133.26	1,363,016.38
32	Manchester.....	1,425,573.42	2,538,373.42	2,566,251.97
33	Mason Village.....	29,697.13	45,741.11	61,000.00
34	Mechanics', Manchester.....	134,369.16	134,369.16	113,195.69
35	Mechanics', Nashua.....	78,367.82	78,367.82	387,074.99
36	Meredith Village.....	16,503.48	17,903.48	404,930.33
37	Merrimack County, Concord.....	256,223.37	267,023.37	741,933.75
38	Merrimack River, Manchester...	635,246.60	637,446.60	1,299,644.09
39	Milford.....	108,853.58	108,853.58	907,128.85
40	Monadnock.....	131,259.59	131,259.59	336,267.17
41	Nashua.....	424,435.83	525,935.83	2,422,472.52
42	New Hampshire, Concord.....	499,439.22	613,039.22	2,457,302.00
43	New Hampshire Banking Co.....	147,411.49	147,411.49	714,688.32
44	New Ipswich.....	53,751.01	53,751.01	21,800.00
45	Newmarket.....	121,142.52	121,142.52	50,328.25
46	Newport.....	182,963.46	219,581.46	241,538.10
47	Norway Plains.....	144,396.26	349,155.52	269,290.00
48	Ossipee Valley Ten-Cent.....	136,224.42	136,224.42	4,200.00
49	People's.....	13,075.00	23,075.00	799,317.27
50	Peterborough.....	226,528.00	226,528.00	441,756.63
51	Piscataqua.....	98,097.67	101,097.67	331,364.22
52	Pittsfield.....	124,183.28	124,183.28	177,393.00
53	Portsmouth.....	530,341.43	563,641.43	2,999,526.26
54	Portsmouth Trust and Guar. Co..	120,852.14	122,502.14	395,672.14
55	Rochester.....	242,153.97	242,153.97	134,370.00
56	Rollinsford.....	212,852.66	212,852.66	410,958.32
57	Sandwich.....	4,836.21	6,086.21	70,390.00
58	Savings Bank, Strafford County..	802,857.14	1,198,772.29	2,162,246.75
59	Security.....	72,240.98	72,240.98	96,260.00
60	Somersworth.....	319,473.46	379,473.46	580,835.00
61	Squamscott.....	25,110.00	26,204.37	3,375.75
62	Sullivan Savings Institution.....	365,440.17	370,440.17	901,773.55
63	Union Five-Cent.....	150,370.95	161,570.95	207,650.00
64	Walpole.....	82,828.74	90,578.74	67,710.00
65	Wilton.....	19,779.82	19,779.82	76,096.57
66	Wolfeborough.....	107,417.67	109,417.67	22,906.79
		\$14,429,182.26	\$17,089,376.38	\$36,210,828.91

TABLE NO. 3. — Showing number of depositors for the years 1886 and 1887, amounts liabilities, of the respective banks as

Number.	NAMES.	No. of de-positors in 1886.	No. of de-positors in 1887.	Av. am't due ea. de-positor.	Miscella- neous in- debted- ness, 1886.	Amount of deposits in 1886.	Amount of deposits in 1887.
1	Alton	236	252	\$243.92	.....	\$58,831.04	\$61,472.55
2	Amoskeag, Manchester.....	8,341	8,658	387.65	.....	3,147,048.37	3,356,338.14
3	Ashland	286	301	176.77	.....	51,144.97	53,210.05
4	Belknap, Laconia	1,589	1,700	399.07	.....	633,413.78	678,416.78
5	Bristol	1,265	1,314	383.96	.....	476,274.88	504,518.97
6	Cheshire Prov. Instit'n, Keene	4,257	4,316	502.98	.....	2,002,035.30	2,170,875.29
7	City, Nashua.....	888	1,152	238.22	.....	226,509.45	274,436.04
8	Cocheco, Dover.....	664	674	338.89	.....	222,894.08	228,418.25
9	Connecticut River, Charlest'n	1,288	1,315	424.76	.....	526,041.55	558,536.63
10	Contoocook Valley, Peterboro'	110	150	176.52	.....	20,846.27	26,479.84
11	Conway	249	271	247.55	.....	58,170.64	* 67,086.22
12	Dartmouth, Hanover.....	1,828	1,932	403.12	.....	756,046.62	778,833.56
13	Dover Five-Cent.....	1,734	1,732	103.03	.....	169,072.51	178,444.88
14	Epping	284	280	230.84	.....	65,489.02	64,635.80
15	Farmington	1,025	1,170	319.75	.....	300,376.43	374,109.87
16	Farmers', Pittsfield.....	104	160	249.76	.....	29,653.19	39,961.11
17	Fitzwilliam.....	484	484	306.73	.....	143,834.95	148,456.44
18	Frankstown.....	328	357	272.78	.....	86,028.46	97,385.73
19	Franklin.....	1,861	1,921	339.91	.....	636,326.42	652,965.85
20	Gorham Five-Cent.....	483	504	128.15	.....	89,182.31	64,588.42
21	Guaranty, Keene.....	814	1,167	453.08	.....	353,742.04	528,745.81
22	Guaranty, Manchester.....	1,207	1,327	546.13	.....	656,991.09	724,712.23
23	Hinsdale.....	739	772	298.95	\$4,000.00	222,495.45	230,792.74
24	Iona, Tilton	888	906	333.42	1,520.00	283,089.54	302,081.95
25	Keene Five-Cent.....	6,329	6,845	320.19	.....	1,913,155.93	2,191,723.45
26	Laconia	2,273	2,372	365.77	.....	805,019.54	867,622.04
27	Lake Village	745	825	275.39	.....	188,670.18	227,200.24
28	Lancaster.....	1,063	1,233	241.82	.....	249,051.10	310,260.61
29	Lebanon	2,370	2,470	311.50	.....	712,711.45	769,409.85
30	Littleton	2,301	2,433	288.92	.....	672,445.54	702,941.90
31	Loan and Trust, Concord.....	4,137	4,490	415.53	.....	1,719,049.26	1,865,751.34
32	Manchester	10,140	10,364	457.32	.....	4,624,350.96	4,739,751.11
33	Mason Village	386	371	209.20	13,800.00	86,987.12	77,612.91
34	Mechanics', Manchester.....	495	524	457.49	.....	220,605.32	239,726.88
35	Mechanics', Nashua.....	1,012	1,086	412.58	.....	381,477.05	448,065.82
36	Mereditth Village.....	1,035	1,116	352.05	.....	352,901.29	392,893.76
37	Merrimack County, Concord..	2,259	2,421	396.39	.....	858,086.66	959,670.70
38	Merrimack River, Manchester	4,723	4,944	448.47	.....	2,089,346.27	2,217,217.28
39	Milford.....	2,398	2,648	364.15	.....	850,394.61	964,265.33
40	Monadnock, East Jaffrey.....	996	992	455.27	.....	436,921.48	451,626.70
41	Nashua	5,480	5,798	479.78	.....	2,536,464.52	2,781,765.11
42	New Hampshire, Concord.....	6,433	6,948	408.24	.....	2,611,482.59	2,836,461.54
43	New Hampshire Banking Co..	1,255	1,416	525.28	672.65	648,414.49	743,791.01
44	New Ipswich	216	216	331.80	.....	72,049.40	71,669.45
45	Newmarket	586	616	280.47	.....	163,657.59	172,772.55
46	Newport	1,588	1,666	275.69	.....	429,639.85	459,315.74
47	Norway Plains, Rochester ...	1,590	1,680	359.79	.....	582,221.30	604,450.60
48	Ossipee Valley Ten-Cent.....	480	491	274.53	.....	127,450.67	134,795.71
49	People's, Manchester.....	1,148	1,238	556.82	.....	634,021.36	689,364.09
50	Peterborough.....	1,954	2,010	318.31	.....	611,236.38	639,801.34
51	Piscataqua, Portsmouth.....	1,090	1,186	363.38	.....	383,332.19	430,967.50
52	Pittsfield.....	1,258	1,320	222.94	.....	263,216.39	294,277.83
53	Portsmouth	8,788	9,327	350.75	576.47	3,179,024.29	3,271,500.90
54	Portsmouth Trust & Guar. Co.	716	744	555.05	.....	391,643.16	412,958.11
55	Rochester.....	1,043	1,153	202.31	.....	322,733.47	358,565.14
56	Rollinsford, Salmon Falls....	1,449	1,478	363.54	.....	508,334.12	537,315.17
57	Sandwich	322	313	253.58	.....	79,372.12	75,156.18
58	Savings Bank for Co. of Straf'd	6,550	6,956	459.58	.....	2,943,907.70	3,199,662.46
59	Security, Winchester.....	631	721	224.00	.....	128,718.78	161,504.79
60	Somersworth, Great Falls.....	2,905	2,970	297.60	.....	815,071.48	883,873.92
61	Squamscott, Exeter.....	76	118	154.76	.....	18,261.43	26,411.19
62	Sullivan Savings Institution..	2,864	2,921	410.32	.....	1,131,764.42	1,198,546.23
63	Union Five-Cent, Exeter.....	1,894	1,991	182.91	.....	335,363.58	364,179.87
64	Walpole	498	485	304.89	.....	149,782.47	147,870.03
65	Wilton	467	477	178.62	.....	75,576.93	85,203.50
66	Wolfeborough	368	476	250.51	.....	104,006.80	119,243.82
		125,273	132,714		\$20,569.12	\$46,622,460.50	\$50,292,666.85

* Business deposit, \$1,017.75.

of deposits, surplus, miscellaneous indebtedness, guaranty fund, and the total they appeared at date of examination.

Number.	Surplus, 1886.	Miscella- neous in- debted- ness, 1887.	Surplus, 1887.	Guaranty fund, 1886.	Guaranty fund, 1887.	Total liabil- ities, 1886.	Total liabil- ities, 1887.
1	\$1,471.81		\$1,609.76	\$1,380.52	\$1,620.52	\$61,683.37	\$64,702.83
2	146,396.80		131,699.08	165,000.00	175,000.00	3,458,445.17	3,663,037.22
3	10,385.16		10,270.20	3,204.19	3,146.19	64,734.32	66,626.44
4	40,521.23		52,363.47	25,000.00	29,000.00	698,935.01	759,780.25
5	14,765.38		13,525.20	26,000.00	30,000.00	517,040.26	548,044.17
6	39,858.45		19,151.17	100,000.00	105,000.00	2,141,893.75	2,295,026.46
7	6,689.97		12,339.90	3,000.00	3,000.00	236,199.42	289,775.94
8	1,943.32		2,907.22	8,225.00	9,175.00	233,062.40	240,500.47
9	680.02		146.52	24,000.00	26,000.00	550,721.57	584,683.15
10	165.29		944.28	50.00	200.00	21,061.56	27,624.12
11	2,573.62		2,403.85	1,595.16	2,160.08	62,339.42	71,650.15
12	29,382.81		35,072.23	15,000.00	18,000.00	800,429.43	831,905.79
13	3,249.69		4,205.86	7,835.00	8,435.00	180,157.20	191,085.74
14	1,805.40		1,805.89	1,000.14	1,128.24	68,294.56	67,569.93
15	23,632.12		17,076.75	10,000.00	13,000.00	334,008.55	404,186.62
16	357.17		766.10	99.00	249.00	30,109.36	40,976.21
17	4,805.86		4,678.47	2,500.00	3,000.00	151,140.81	156,134.91
18	968.21		731.20	2,053.93	2,553.93	89,050.60	100,670.86
19	16,264.40		14,108.82	23,162.34	26,183.01	675,753.16	693,257.68
20	2,280.46		10,107.73	1,269.82	1,668.74	92,732.59	76,364.89
21	6,434.32		15,907.38	50,000.00	80,000.00	410,176.36	624,653.19
22	29,111.67		45,544.48	72,000.00	100,000.00	758,103.66	870,256.71
23	4,724.54		6,409.22	7,181.88	11,036.66	238,401.87	248,238.62
24	9,263.91		11,868.79	5,400.00	7,900.00	299,273.45	321,850.74
25	32,939.53		9,780.92	90,000.00	100,000.00	2,036,095.46	2,301,504.37
26	33,883.07		31,268.43	30,000.00	35,000.00	868,902.61	933,890.47
27	20,236.87		22,330.57	6,343.72	7,434.82	215,250.77	256,965.63
28	2,647.71		7,340.89	2,134.75	2,463.36	253,833.56	320,064.86
29	48,407.04		49,540.58	19,433.65	22,400.00	780,552.14	841,350.43
30	21,233.14		17,422.41	20,000.00	25,000.00	713,678.68	745,364.31
31	62,112.52		79,089.78	48,000.00	60,000.00	1,829,161.78	2,004,841.12
32	218,792.41		171,181.38	190,000.00	210,000.00	5,033,143.37	5,120,932.49
33	10,178.78	\$11,000.00	11,766.33	3,920.11	4,000.00	114,886.01	104,379.24
34	1,326.21		4,264.82	5,020.81	6,212.94	226,952.34	250,204.64
35	6,446.07	1,250.00	7,749.81	6,700.00	8,500.00	394,623.12	465,563.63
36	13,494.90		17,267.56	15,900.00	18,400.00	382,296.19	428,561.32
37	31,605.56		25,409.07	40,000.00	40,000.00	929,692.22	1,025,079.77
38	66,429.38		49,241.95	110,000.00	110,000.00	2,265,775.65	2,376,459.23
39	29,212.27		27,956.07	35,000.00	38,000.00	914,606.88	1,030,221.40
40	6,218.92		4,757.00	12,714.26	15,152.92	455,854.66	471,536.62
41	64,829.76		92,068.16	125,000.00	130,000.00	2,726,294.28	3,003,833.27
42	67,268.99		130,888.42	135,000.00	150,000.00	2,813,751.58	3,117,349.96
43	30,350.95	1,891.73	36,452.19	75,000.00	100,000.00	754,438.09	882,134.93
44	4,946.34		7,639.99	2,800.00	3,000.00	79,795.74	82,309.44
45	1,181.27		992.46	685.50	1,000.00	165,524.36	174,765.01
46	7,666.78		4,910.22	23,000.00	25,000.00	460,306.63	489,225.96
47	12,002.32		11,811.28	5,014.75	2,183.64	599,238.37	618,445.52
48	4,923.41		3,155.81	5,000.00	5,000.00	137,374.08	142,951.52
49	50,796.01		57,256.09	100,000.00	100,000.00	784,817.37	846,620.18
50	13,890.09		13,678.84	23,297.11	26,408.64	648,423.58	679,888.82
51	5,000.00		11,565.16	6,310.61	6,000.00	394,642.80	448,532.66
52	10,751.13		4,113.44	6,000.00	6,500.00	279,967.52	304,891.27
53	148,641.43		199,936.01	137,269.58	154,417.49	3,465,511.77	3,625,854.40
54	6,633.41	81.00	8,069.87	100,000.00	100,000.00	498,276.57	521,108.98
55	12,870.51		14,067.97	7,192.54	7,192.54	342,796.52	379,825.65
56	49,234.75		65,227.41	25,000.00	25,000.00	582,568.87	627,542.58
57	1,848.82		1,877.75	1,526.16	1,526.16	82,747.10	78,560.09
58	69,362.66		41,347.50	78,947.50	134,189.75	3,092,217.86	3,375,199.71
59	3,078.30		4,523.44	1,875.00	2,625.00	133,672.08	168,653.23
60	32,122.87		42,784.54	26,000.00	26,000.00	873,194.35	952,658.46
61	2,543.07		2,565.19	702.00	733.00	21,506.50	29,709.38
62	21,876.11		26,538.73	60,000.00	60,000.00	1,213,640.53	1,285,084.96
63	4,928.31		12,822.19	3,863.00	5,070.00	344,154.89	382,072.06
64	5,466.40		5,094.93	5,100.00	5,900.00	160,348.87	158,864.96
65	3,128.72		7,248.96	3,300.00	4,000.00	81,005.65	96,452.46
66	13,699.42		15,925.44	1,550.00	1,550.00	119,256.22	136,719.26
	\$1,651,937.82	\$14,222.73	\$1,774,573.13	\$2,149,558.03	\$2,443,316.63	\$50,444,525.47	\$54,524,779.34

TABLE No. 4. — Exhibiting the amount on Western farm mortgages, Western personal and collateral security, United States,

Number.	NAMES.	Loans secured by Western farm mortgages.	Loans secured by Western city mortgages.
1	Alton.....	\$500.00	.....
2	Amoskeag, Manchester.....	865,357.57	\$107,000.00
3	Ashland.....	21,225.00	.....
4	Belknap, Laconia.....	240,200.00	112,375.00
5	Bristol.....	307,338.59	61,000.00
6	Cheshire Provident Institution, Keene...	810,289.28	.....
7	City, Nashua.....	76,964.66	.....
8	Cochecho, Dover.....	5,700.00	.....
9	Connecticut River, Charlestown.....	302,551.25	.....
10	Contoocook Valley, Peterborough.....	11,905.00	.....
11	Conway.....	.....	.....
12	Dartmouth, Hanover.....	354,190.00	.....
13	Dover Five-Cent.....	19,605.00	.....
14	Epping.....	14,300.00	.....
15	Farmington.....	268,671.38	.....
16	Farmers', Pittsfield.....	18,085.00	.....
17	Fitzwilliam.....	61,566.32	.....
18	Francestown.....	17,212.50	.....
19	Franklin.....	279,570.00	.....
20	Gorham Five-Cent.....	.....	.....
21	Guaranty, Keene.....	349,660.00	.....
22	Guaranty, Manchester.....	312,085.24	166,130.00
23	Hinsdale.....	102,978.61	.....
24	Iona, Tilton.....	126,230.00	.....
25	Keene Five-Cents.....	1,087,655.13	.....
26	Laconia.....	282,417.90	.....
27	Lake Village.....	155,250.00	.....
28	Lancaster.....	141,475.36	.....
29	Lebanon.....	499,769.17	131,760.00
30	Littleton.....	252,999.37	30,475.00
31	Loan and Trust, Concord.....	303,938.00	437,600.00
32	Manchester.....	.....	1,495,300.00
33	Mason Village.....	.....	.....
34	Mechanics', Manchester.....	82,525.00	.....
35	Mechanics', Nashua.....	231,160.59	.....
36	Meredith Village.....	339,290.33	58,300.00
37	Merrimack County, Concord.....	312,162.00	.....
38	Merrimack River, Manchester.....	448,147.40	.....
39	Milford Five-Cent.....	618,028.85	.....
40	Monadnock, East Jaffrey.....	224,419.65	.....
41	Nashua.....	753,744.00	110,000.00
42	New Hampshire, Concord.....	239,850.00	242,550.00
43	New Hampshire Banking Co., Nashua...	575,978.85	.....
44	New Ipswich.....	12,800.00	.....
45	Newmarket.....	15,925.00	.....
46	Newport.....	130,457.10	.....
47	Norway Plains, Rochester.....	.....	37,700.00
48	Ossipee Valley Ten-Cent, Freedom.....	4,200.00	.....
49	People's, Manchester.....	728,178.25	.....
50	Peterborough.....	180,625.71	38,915.00
51	Piscataqua, Portsmouth.....	95,950.00	70,200.00
52	Pittsfield.....	117,698.00	12,000.00
53	Portsmouth.....	632,635.49	899,512.75
54	Portsmouth Trust and Guaranty Co.....	194,075.00	.....
55	Rochester.....	134,370.00	.....
56	Rollinsford, Salmon Falls.....	145,510.00	.....
57	Sandwich.....	25,550.00	7,600.00
58	Savings Bank for County of Strafford.....	.....	.....
59	Security, Winchester.....	78,650.00	.....
60	Somersworth, Great Falls.....	54,245.00	.....
61	Squamscott, Exeter.....	3,375.75	.....
62	Sullivan Savings Institution, Claremont.	377,087.90	211,172.00
63	Union Five-Cent, Exeter.....	103,650.00	.....
64	Walpole.....	32,000.00	.....
65	Wilton.....	71,675.00	.....
66	Wolfborough.....	22,906.79	.....
		\$14,276,561.99	\$4,229,589.75

city mortgages, Western personal and collateral, local real estate, local per-state, county, city, town, and district bonds.

Number.	Loans on collateral security (Western).	Loans on personal security (Western).	Loans on local real estate.	Loans on collateral security.	Loans on personal security.
1			\$38,238.19	\$1,127.69	\$9,764.47
2	\$74,783.34		484,766.45	271,449.02	501,374.82
3			30,663.70	4,538.64	7,478.93
4			119,945.47	21,038.77	79,511.50
5			31,156.27	10,890.80	8,017.98
6			446,376.88	102,153.59	78,796.30
7			63,366.69	37,937.83	34,876.00
8			38,307.00	36,280.08	20,023.20
9	23,500.00	\$10,000.00	35,704.50	16,545.00	33,956.18
10			7,130.00		210.00
11			44,591.88	2,965.00	14,414.00
12			48,450.00	8,415.00	8,216.27
13			44,252.00	11,770.00	8,310.28
14			30,256.61	1,825.00	10,273.24
15			59,574.00	1,514.25	11,038.93
16			5,710.00	6,600.00	8,447.57
17			31,202.99	1,650.00	8,492.78
18			41,982.33	5,096.41	6,345.90
19			57,544.25	98,731.94	78,566.41
20			52,679.67	4,917.79	15,519.38
21	9,000.00	9,900.00	11,575.85	2,690.00	5,525.00
22			36,326.62	108,581.29	18,820.19
23			52,519.00		10,937.75
24			100,866.46	14,796.00	42,931.91
25	59,500.00	64,411.74	282,790.58	38,781.50	47,265.88
26			216,559.50	42,219.00	68,957.55
27			35,805.53	2,693.00	11,750.70
28			28,251.91	6,627.83	5,277.87
29	5,000.00	7,847.00	66,567.37	7,799.00	1,325.00
30		43,499.62	90,606.44	106,900.71	96,932.98
31	19,400.00	55,569.58	234,191.00	171,190.50	106,522.34
32			374,314.72	1,031,313.95	691,325.72
33			17,235.00	714.00	3,710.00
34			44,489.67	26,262.77	36,616.72
35		17,113.75	41,545.00	350.00	8,650.00
36			3,575.00	1,520.00	6,733.00
37			109,915.50	57,897.87	66,300.00
38			100,623.31	114,160.16	93,051.25
39	10,000.00		64,543.66	6,025.00	
40		2,000.00	74,795.68	14,725.00	4,801.46
41	5,500.00		249,763.03	28,747.80	39,125.00
42	50,500.00		159,660.00	60,615.00	93,680.00
43	4,453.30		76,371.50	23,915.84	15,043.68
44			36,012.01		963.00
45			27,703.25	11,921.92	48,980.17
46	29,000.00		107,730.63	10,050.00	21,934.50
47			44,700.00	47,100.02	106,865.28
48			49,041.74	6,693.94	79,188.74
49		30,139.02		12,150.00	15,925.00
50		7,000.00	106,929.67	8,655.00	22,393.20
51	10,000.00	5,177.92	32,325.67	31,422.00	15,450.00
52			34,984.99	43,116.00	34,644.65
53		34,550.10	249,430.61	63,088.27	62,035.84
54		10,000.00	9,146.14	790.00	1,250.00
55			101,860.95	25,499.51	90,613.62
56		39,398.32	49,035.00	12,550.00	25,700.00
57			965.56		647.25
58			330,598.27	77,166.97	128,932.00
59			42,347.08	9,800.00	8,723.90
60		5,000.00	65,816.50	30,179.50	82,966.86
61			21,610.00	2,200.00	1,300.00
62			203,407.26	56,241.91	44,059.00
63			93,791.33	11,992.00	29,342.90
64			60,977.50	2,002.10	7,849.14
65			8,113.36		3,728.46
66			49,210.19	12,243.96	35,068.52
	\$300,636.64	\$341,607.05	\$5,910,528.92	\$2,988,836.13	\$3,287,480.17

TABLE No. 4—

Number.	NAMES.	Miscellaneous investments.
1	Alton	* \$407.55
2	Amoskeag, Manchester.....	† 22,880.72
3	Ashland	* 769.41
4	Belknap, Laconia.....	* 500.00
5	Bristol.....	† 11,014.20
6	Cheshire Provident Institution, Keene.....	† 23,857.25
7	City, Nashua.....	{ † 11,100.00 \$ 9,998.75 * 600.00
8	Cochecho, Dover.....	.....
9	Connecticut River, Charlestown....	.....
10	Contoocook Valley, Peterborough.....	* 220.56
11	Conway.....	.....
12	Dartmouth, Hanover .....	.....
13	Dover Five-Cent.....	.....
14	Epping.....	* 384.08
15	Farmington .....	.....
16	Farmers', Pittsfield.....	.....
17	Fitzwilliam.....	.....
18	Francestown.....	* 87.50
19	Franklin	* 500.00
20	Gorham Five-Cent.....	.....
21	Guaranty, Keene.....	† 974.08
22	Guaranty, Manchester	† 3,000.00
23	Hinsdale.....	* 723.92
24	Iona, Tilton.....	.....
25	Keene Five-Cent.....	† 13,191.00
26	Laconia.....	.....
27	Lake Village.....	* 1,275.00
28	Lancaster.....	* 700.00
29	Lebanon	* 1,000.00
30	Littleton.....	.....
31	Loan and Trust, Concord.....	.....
32	Manchester.....	.....
33	Mason Village.....	.....
34	Mechanics', Manchester.....	.....
35	Mechanics', Nashua .....	|| 74,993.58
36	Meredith Village.....	.....
37	Merrimack County, Concord.....	.....
38	Merrimack River, Manchester.....	.....
39	Milford.....	.....
40	Monadnock, East Jaffrey.....	* 1,850.00
41	Nashua.....	.....
42	New Hampshire, Concord.....	.....
43	New Hampshire Banking Co., Nashua.....	|| 21,699.61
44	New Ipswich.....	.....
45	Newmarket.....	† 4,463.08
46	Newport.....	† 3,303.42
47	Norway Plains, Rochester.....	.....
48	Ossipee Valley Ten-Cent, Freedom.....	* 400.00
49	People's, Manchester.....	† 15,083.35
50	Peterborough	{ † 4,900.00 * 1,000.00
51	Piscataqua, Portsmouth.....	.....
52	Pittsfield.....	.....
53	Portsmouth.....	{ ** 1,527.63 † 2,587.92 †† 71,400.00 †† 6,750.00 §§ 57,951.14
54	Portsmouth Trust and Guaranty Co.....	.....
55	Rochester.....	.....
56	Rollinsford, Salmon Falls.....	.....
57	Sandwich.....	* 350.00
58	Savings Bank for County of Strafford, Dover.....	.....
59	Security, Winchester.....	.....
60	Somersworth, Great Falls.....	.....
61	Squamscott, Exeter.....	.....
62	Sullivan Savings Institution, Claremont.....	.....
63	Union Five-Cent, Dover.....	* 1,180.00
64	Walpole .....	.....
65	Wilton.....	.....
66	Wolfeborough.....	* 600.00
		\$373,223.75

* Bank fixtures. † With investing agents. ‡ Collateral security, Texas.
 § Personal security, Texas. || Chattel mortgages. ¶ Personal property.
 ** History books. †† Florida mortgages. ‡‡ Florida call note. §§ Warrants.

Continued.

Number.	United States and State bonds.	County, city, town, and dis- trict bonds.	Railroad bonds.	Railroad stock.	Bank stock.
1	\$5,900.00	.....	\$3,265.58	\$3,035.00	.....
2	150,000.00	\$132,075.00	270,720.00	257,220.00	\$232,400.00
3	.....	1,000.00	.....	.....	.....
4	9,950.00	48,250.00	44,000.00	5,000.00	2,800.00
5	.....	19,482.00	11,000.00	.....	6,625.00
6	.....	354,540.96	122,913.33	72,162.50	77,569.13
7	.....	.....	2,878.42	19,274.37	19,695.00
8	.....	.....	81,392.75	18,626.25	30,525.23
9	.....	63,994.98	18,700.00	.....	17,548.00
10	.....	1,955.00	.....	.....	.....
11	.....	.....	.....	.....	.....
12	.....	122,654.00	225,946.25	2,900.00	15,400.00
13	.....	.....	76,797.00	.....	14,292.00
14	.....	.....	8,260.00	.....	1,167.67
15	.....	1,100.00	.....	.....	40,800.00
16	.....	.....	.....	.....	1,050.00
17	.....	7,727.00	4,934.17	.....	7,851.00
18	.....	8,350.00	.....	.....	10,442.50
19	.....	100.00	90,500.00	20,500.00	25,600.00
20	.....	.....	.....	.....	.....
21	.....	33,000.00	4,000.00	43,290.00	37,775.00
22	.....	18,800.00	54,000.00	67,620.36	18,650.00
23	.....	40,387.48	.....	.....	7,000.00
24	.....	10,000.00	14,500.00	1,450.00	.....
25	.....	233,528.50	47,243.75	38,781.25	90,691.00
26	30,600.00	92,227.55	48,400.00	5,000.00	23,300.00
27	100.00	20,982.34	3,765.00	.....	8,630.00
28	3,000.00	82,996.66	19,055.88	2,520.00	2,000.00
29	.....	26,209.00	24,950.00	.....	34,792.00
30	.....	25,988.23	.....	.....	44,166.67
31	25,550.00	252,801.03	92,837.50	20,000.00	42,851.75
32	124,000.00	324,564.08	748,069.67	84,600.00	63,249.75
33	.....	13,827.50	25,896.88	26,698.75	8,470.00
34	1,050.00	.....	19,864.44	4,756.25	25,000.00
35	.....	23,559.43	2,980.00	.....	18,250.00
36	.....	3,850.00	5,390.00	200.00	.....
37	.....	77,780.00	184,315.00	65,876.75	15,910.00
38	.....	501,912.59	773,537.50	63,500.00	115,866.88
39	.....	245,600.00	9,000.00	600.00	21,200.00
40	.....	40,470.00	36,877.52	.....	14,362.62
41	10,000.00	309,473.61	301,500.00	273,804.79	300,650.00
42	36,000.00	514,597.00	1,117,500.00	172,205.00	6,700.00
43	.....	83,256.66	8,100.00	1,920.00	23,300.00
44	.....	.....	9,000.00	.....	.....
45	.....	.....	.....	.....	15,200.00
46	200.00	46,600.00	28,600.00	50,603.00	22,509.33
47	.....	119,600.00	137,712.50	.....	8,400.00
48	.....	.....	.....	.....	1,300.00
49	20,000.00	11,000.00	.....	.....	.....
50	.....	86,113.00	54,332.09	69,175.28	64,466.00
51	.....	109,779.75	.....	.....	37,097.13
52	.....	9,545.00	18,500.00	2,250.00	500.00
53	107,000.00	834,079.46	.....	12,000.00	34,629.00
54	.....	36,150.00	55,350.00	12,450.00	3,175.00
55	.....	.....	.....	.....	10,000.00
56	.....	136,550.00	50,000.00	.....	50,420.00
57	.....	19,178.95	11,235.00	3,155.00	.....
58	.....	1,373,783.00	1,305,263.75	79,386.09	15,000.00
59	.....	9,710.00	.....	.....	7,370.00
60	20,000.00	387,500.00	139,650.00	.....	46,040.00
61	.....	.....	619.37	.....	475.00
62	.....	.....	235,763.65	41,650.00	58,664.00
63	.....	74,500.00	10,000.00	6,500.00	7,200.00
64	.....	15,600.00	19,610.00	.....	5,000.00
65	.....	4,421.57	.....	.....	5,000.00
66	.....	.....	.....	.....	8,595.00
	\$543,350.00	\$7,011,151.33	\$6,578,727.00	\$1,548,710.64	\$1,827,621.66

TABLE No. 4—

Number.	NAMES.	Manufacturing stock.
1	Alton.....	.....
2	Amoskeag, Manchester.....	\$95,000.00
3	Ashland.....	.....
4	Belknap, Laconia.....	.....
5	Bristol.....	.....
6	Cheshire Provident Institution, Keene .....	.....
7	City, Nashua.....	.....
8	Cochecho, Dover....	.....
9	Connecticut River, Charlestown ...	.....
10	Contoocook Valley, Peterborough.....	.....
11	Conway.....	.....
12	Dartmouth, Hanover.....	.....
13	Dover Five-Cent.....	.....
14	Epping.....	.....
15	Farmington.....	.....
16	Farmers', Pittsfield.....	.....
17	Fitzwilliam.....	.....
18	Francestown.....	.....
19	Franklin.....	.....
20	Gorham Five-Cent.....	.....
21	Guaranty, Keene.....	.....
22	Guaranty, Manchester.....	4,655.00
23	Hinsdale.....	.....
24	Iona, Tilton .....	.....
25	Keene Five-Cent.....	.....
26	Laconia.....	.....
27	Lake Village.....	.....
28	Lancaster.....	.....
29	Lebanon.....	.....
30	Littleton.....	4,600.00
31	Loan and Trust, Concord.....	.....
32	Manchester	5,000.00
33	Mason Village.....	.....
34	Mechanics', Manchester....	2,000.00
35	Mechanics', Nashua.....	.....
36	Meredith Village.....	700.00
37	Merrimack County, Concord.....	800.00
38	Merrimack River, Manchester.....	2,345.00
39	Milford Five-Cent....	.....
40	Monadnock, East Jaffrey....	.....
41	Nashua.....	.....
42	New Hampshire, Concord.....	50,800.00
43	New Hampshire Banking Co., Nashua.....	.....
44	New Ipswich.....	.....
45	Newmarket.....	1,000.00
46	Newport.....	.....
47	Norway Plains, Rochester.....	.....
48	Ossipee Valley Ten-Cent, Freedom.....	.....
49	People's, Manchester .....	.....
50	Peterborough.....	.....
51	Piscataqua, Portsmouth .....	.....
52	Pittsfield.....	.....
53	Portsmouth .....	.....
54	Portsmouth Trust and Guaranty Co.....	.....
55	Rochester .....	.....
56	Rollinsford, Salmon Falls.....	.....
57	Sandwich.....	.....
58	Savings Bank for the County of Strafford, Dover .....	.....
59	Security, Winchester.....	.....
60	Somersworth, Great Falls .....	.....
61	Squamscott, Exeter.....	.....
62	Sullivan Savings Institution, Claremont.....	.....
63	Union Five-Cent, Dover.....	.....
64	Walpole.....	2,750.00
65	Wilton.....	.....
66	Wolfeborough.....	.....
		\$169,650.00

Continued.

Number.	Miscellaneous bonds and stocks.	Real estate acquired.	Cash on hand and deposits.	Real estate purchased.	Total assets.
1	.....	\$805.00	\$1,659.35	.....	\$64,702.83
2	\$132,320.00	.....	65,690.30	.....	3,663,037.22
3	.....	.....	950.76	.....	66,626.44
4	32,300.00	.....	27,909.51	\$16,000.00	759,780.25
5	71,090.00	3,046.95	7,382.38	.....	548,044.17
6	129,400.12	2,879.92	13,703.57	60,383.63	2,295,026.46
7	10,800.00	.....	2,284.22	.....	289,775.94
8	.....	8,815.66	830.30	.....	240,000.47
9	33,000.00	1,550.00	27,633.24	.....	548,683.15
10	6,000.00	100.00	103.56	.....	27,624.12
11	.....	6,014.56	3,664.71	.....	71,650.15
12	19,547.07	2,800.00	15,837.20	8,000.00	831,905.79
13	.....	14,409.85	1,649.51	.....	191,085.74
14	.....	200.00	903.33	.....	67,569.93
15	15,000.00	.....	2,488.06	4,000.00	404,186.62
16	500.00	.....	583.64	.....	40,976.21
17	28,400.00	.....	4,310.65	.....	156,134.91
18	7,800.00	694.36	2,659.36	.....	100,670.86
19	28,500.00	.....	13,145.08	.....	693,257.68
20	500.00	.....	2,748.05	.....	76,364.89
21	95,300.00	.....	21,963.26	.....	624,653.19
22	29,300.00	9,747.78	22,540.23	.....	870,256.71
23	32,570.42	.....	1,121.44	.....	248,238.62
24	.....	6,370.00	4,706.37	.....	321,850.74
25	258,514.40	4,851.55	* 34,298.09	.....	2,301,504.37
26	97,000.00	9,200.00	18,008.97	.....	933,890.47
27	7,650.00	2,209.59	6,854.47	.....	256,965.63
28	14,354.83	.....	13,804.52	.....	320,064.86
29	9,448.54	3,386.01	21,497.34	.....	841,350.43
30	33,210.00	.....	15,985.29	.....	74,364.31
31	201,260.00	9,437.94	31,691.48	.....	2,004,841.12
32	162,887.50	.....	16,307.10	.....	5,120,932.49
33	5,045.00	.....	2,782.11	.....	104,379.24
34	.....	.....	† 7,639.79	.....	250,204.64
35	36,840.46	.....	‡ 10,122.82	.....	465,565.63
36	.....	3,275.48	5,727.51	.....	428,561.32
37	115,200.00	2,800.00	16,122.65	.....	1,025,079.77
38	86,500.00	.....	76,815.14	.....	2,376,459.23
39	36,000.00	1,984.92	14,238.97	3,000.00	1,030,221.40
40	51,000.00	2,224.83	4,009.86	.....	471,536.62
41	562,600.12	3,500.00	55,424.92	.....	3,003,833.27
42	294,500.00	2,300.00	47,008.74	28,884.22	3,117,349.96
43	24,400.00	3,660.47	20,035.12	.....	882,134.93
44	5,000.00	10,776.00	6,758.43	1,000.00	82,309.44
45	6,700.00	39,577.35	3,294.24	.....	174,765.01
46	12,500.00	935.00	24,802.98	.....	489,225.96
47	48,940.00	46,213.64	15,578.34	5,635.74	618,445.52
48	.....	.....	2,127.10	.....	142,951.52
49	5,000.00	1,000.00	8,144.56	.....	846,620.18
50	12,249.55	1,042.51	6,703.19	15,388.62	679,888.82
51	36,473.13	.....	4,657.06	.....	448,532.66
52	24,050.00	.....	3,314.99	4,287.64	304,891.27
53	549,401.45	73,277.09	60,098.79	10,000.00	3,625,854.40
54	10,111.00	49,576.00	2,934.70	.....	521,108.98
55	.....	14,559.21	2,922.36	.....	379,825.65
56	47,100.00	67,547.66	3,731.60	.....	627,542.58
57	4,565.00	2,873.40	2,439.93	.....	78,560.09
58	35,250.00	15,638.96	14,180.67	.....	3,375,199.71
59	9,500.00	2,400.00	152.25	.....	168,653.23
60	47,350.00	8,070.14	5,840.46	60,000.00	952,658.46
61	.....	.....	129.26	.....	29,709.38
62	36,100.00	5,068.00	12,871.24	3,000.00	1,285,084.96
63	23,100.00	7,964.72	12,851.11	.....	382,072.06
64	8,500.00	4,000.00	576.22	.....	158,864.96
65	.....	.....	1,014.07	2,500.00	96,452.46
66	4,300.00	.....	3,794.80	.....	136,719.26
	\$3,594,928.50	\$456,784.55	\$863,311.32	\$222,079.85	\$54,524,779.34

* \$15,000 cert. of deposit. † \$5,000 cert. of deposit. ‡ \$10,000 cert. of deposit.

TABLE No. 5. — Showing earnings, expenses, amount of state tax, rate of stocks and bonds, of the respective

Number.	NAMES.	Earnings for 1886.
1	Alton	\$3,641.51
2	Amoskeag, Manchester	213,153.47
3	Ashland	3,279.33
4	Belknap, Laconia	45,322.37
5	Bristol	37,125.94
6	Cheshire Provident Institution, Keene	145,274.73
7	City, Nashua	15,469.07
8	Cocheco, Dover	15,331.21
9	Connecticut River, Charlestown	35,303.05
10	Contoocook Valley, Peterborough	1,572.94
11	Conway	3,580.59
12	Dartmouth, Hanover	57,925.10
13	Dover Five-Cent	9,135.53
14	Epping	2,928.07
15	Farmington	23,498.54
16	Farmers'	1,812.10
17	Fitzwilliam	9,116.33
18	Francetown	6,420.87
19	Franklin	39,093.37
20	Gorham Five-Cent	4,660.77
21	Guaranty, Keene	34,029.55
22	Guaranty, Manchester	54,294.04
23	Hinsdale	18,690.45
24	Iona, Tilton	17,706.15
25	Keene Five-Cents	140,005.26
26	Laconia	58,721.97
27	Lake Village	15,352.94
28	Lancaster	19,602.55
29	Lebanon	45,976.36
30	Littleton	45,640.34
31	Loan and Trust, Concord	120,788.47
32	Manchester	265,215.43
33	Mason Village	5,685.44
34	Mechanics', Manchester	14,731.92
35	Mechanics', Nashua	26,823.94
36	Meredith Village	29,764.75
37	Merrimack County, Concord	66,439.55
38	Merrimack River, Manchester	129,590.96
39	Milford	67,185.55
40	Monadnock, East Jaffrey	31,757.78
41	Nashua	181,238.85
42	New Hampshire, Concord	183,228.77
43	New Hampshire Banking Co., Nashua	60,966.29
44	New Ipswich	5,334.50
45	Newmarket	9,467.21
46	Newport	29,572.92
47	Norway Plains, Rochester	36,454.42
48	Ossipee Valley Ten-Cent, Freedom	6,378.53
49	People's, Manchester	50,437.75
50	Peterborough	44,266.33
51	Piscataqua, Portsmouth	28,748.12
52	Pittsfield	16,891.27
53	Portsmouth	236,641.23
54	Portsmouth Trust and Guaranty Co.	34,017.24
55	Rochester	21,409.71
56	Rollinsford, Salmon Falls	45,087.13
57	Sandwich	4,930.76
58	Savings Bank for County of Strafford, Dover	207,629.10
59	Security, Winchester	10,399.83
60	Somersworth, Great Falls	53,309.88
61	Squamscott, Exeter	1,646.06
62	Sullivan Savings Institution, Claremont	69,762.63
63	Union Five-Cent, Dover	19,970.91
64	Walpole	10,390.52
65	Wilton	6,543.40
66	Wolfeborough	6,956.33
		\$3,263,327.98

dividends and amount of same, for year ending Dec. 31, 1886, premium on banks on April 1, 1887.

Number.	Expenses for 1886.	State tax paid in 1886.	Rate of dividend paid in 1886.	Amount of dividends paid.	Premium on bonds and stocks.
1	\$345.46	\$594.01	4		\$ 339.58
2	7,846.41	31,382.92	5	\$149,213.15	386,037.00
3	982.32	494.81	4	1,860.20	
4	2,318.70	6,177.46	5	30,011.05	11,518.00
5	2,405.88	4,136.43	5	21,862.18	9,281.00
6	3,508.81	19,390.50	5	101,371.53	85,415.49
7	2,032.95	2,229.52	5	10,097.83	1,265.46
8	1,083.84	2,195.18	4	8,744.99	2,444.77
9	1,147.94	5,205.45	5	25,719.66	1,431.00
10	38.66	208.53	4	612.07	745.00
11	603.22	549.27	3½	1,956.34	
12	2,179.17	7,436.97	4	28,646.12	46,192.25
13	973.95	1,657.28	4	6,596.79	1,621.00
14	183.88	627.71	4	2,353.42	
15	1,161.26	3,371.04	4	13,704.96	6,565.09
16	9.45	294.58	4	1,135.22	250.00
17	605.14	1,432.18	4½	6,191.65	3,782.83
18	600.56	831.60	5	4,223.67	757.50
19	1,876.70	6,296.28	4	24,250.04	12,117.50
20	654.06	895.55	4	3,057.43	
21	1,154.93	4,348.70	5	21,168.40	16,325.00
22	2,176.04	7,078.88	*4½	32,726.59	17,213.64
23	869.83	2,201.43	4	8,684.58	3,920.00
24	1,404.11	2,967.76	4	11,224.17	\$ 1,370.00
25	3,775.21	19,924.52	5	101,150.58	20,504.50
26	2,051.42	7,677.90	4½	35,822.25	26,165.00
27	1,783.98	1,802.87	5	9,128.44	3,699.66
28	1,961.68	2,703.09	4	10,966.43	2,774.42
29	2,321.29	6,901.38	4	27,742.44	7,431.50
30	2,730.10	6,887.42	4	36,450.66	13,100.33
31	5,393.67	16,933.54	4	64,787.33	27,148.25
32	8,913.51	45,879.23	4	177,097.67	197,755.58
33	402.46	827.45	4	3,149.59	\$ 563.88
34	721.88	2,253.50	4½	9,700.99	4,253.31
35	1,671.94	4,014.24	5	18,150.56	186.00
36	1,250.79	3,700.25	5	18,656.10	1,940.00
37	4,800.90	8,446.19	4, & 2 4-10 }	44,272.89	41,753.25
38	5,281.33	20,880.96	5 extra. }	100,498.08	213,477.46
39	2,702.44	8,426.09	5	42,460.73	\$ 2,550.00
40	1,944.39	4,364.98	5	21,529.65	7,514.86
41	7,147.10	25,603.22	4, & 1 extra.	122,832.01	229,907.48
42	6,348.53	25,827.14	4	91,544.45	244,343.00
43	4,329.45	7,416.07	5	34,085.44	6,219.00
44	603.74	617.25	4	2,772.51	1,580.00
45	656.97	1,276.10	4	6,484.50	1,520.00
46	2,138.19	4,221.90	5	20,896.81	21,853.67
47	2,434.09	5,003.55	4	22,960.16	4,111.86
48	508.52	1,288.78	4	5,089.85	65.00
49	1,880.09	7,352.88	†5	37,522.54	8,305.00
50	2,513.05	6,064.60	4½	26,606.50	31,580.58
51	670.37	4,046.24	4	15,119.17	956.29
52	1,458.76	2,469.82	4	9,886.64	2,449.00
53	8,462.41	31,327.70	4	126,607.49	91,535.41
54	1,875.51	4,307.89	†4	21,073.60	11,459.04
55	2,030.33	3,220.60	4	12,515.45	1,500.00
56	2,193.00	4,495.37	4	19,965.22	43,750.00
57	486.46	721.00	4	2,852.50	\$ 5,572.95
58	5,661.96	30,143.52	3, & 1 extra.	139,851.91	384,195.16
59	576.86	1,297.29	5	6,510.76	1,555.00
60	2,500.00	8,371.00	4	32,798.97	31,430.50
61	125.00	222.50	5	964.96	
62	4,062.63	11,103.43	5	55,306.29	50,205.35
63	2,495.35	3,384.37	2	6,227.59	\$ 21,559.00
64	514.20	1,465.50	4½	6,532.18	2,827.50
65	497.31	601.35	5	3,628.44	\$ 3,421.57
66	924.68	880.78	4	3,472.01	507.00
	\$146,964.76	\$466,357.50		\$2,071,084.38	\$2,346,442.40

* 4 per cent to special depositors.

† 6 per cent to special depositors.

‡ 8 per cent to special depositors.

§ Premium impaired.

TABLE No. 6. — Alphabetical list of the Savings Banks, with statements

Number.	NAMES.	Deposits.
1	Alton.....	\$60,205.68
2	Amoskeag, Manchester.....	3,138,292.29
3	Ashland.....	49,481.84
4	Belknap, Laconia.....	634,287.56
5	Bristol.....	471,095.23
6	Cheshire Provident Institution, Keene.....	2,044,747.45
7	City, Nashua.....	230,757.15
8	Cocheco, Dover.....	227,054.55
9	Connecticut River, Charlestown.....	523,489.86
10	Contoocook Valley, Peterborough.....	20,856.38
11	Conway.....	58,789.91
12	Dartmouth, Hanover.....	755,497.53
13	Dover Five-Cent.....	165,728.02
14	Epping.....	64,303.64
15	Farmington.....	341,104.01
16	Farmers', Pittsfield.....	28,988.14
17	Fitzwilliam.....	143,818.28
18	Francestown.....	84,874.41
19	Franklin.....	629,628.32
20	Gorham Five-Cent.....	89,655.09
21	Guaranty, Keene.....	384,870.36
22	Guaranty, Manchester.....	661,720.48
23	Hinsdale.....	220,793.16
24	Iona, Tilton.....	300,416.09
25	Keene Five-Cents.....	1,999,120.30
26	Laconia.....	804,754.23
27	Lake Village.....	186,654.76
28	Lancaster.....	270,309.11
29	Lebanon.....	712,909.90
30	Littleton.....	689,803.74
31	Loan and Trust, Concord.....	1,706,158.33
32	Manchester.....	4,587,923.16
33	Mason Village.....	82,745.70
34	Mechanics', Manchester.....	225,350.02
35	Mechanics', Nashua.....	401,424.30
36	Meredith Village.....	373,011.67
37	Merrimack County, Concord.....	858,086.66
38	Merrimack River, Manchester.....	2,088,095.99
39	Milford.....	847,161.22
40	Monadnock, East Jaffrey.....	436,921.48
41	Nashua.....	2,560,321.63
42	New Hampshire, Concord.....	2,626,713.94
43	New Hampshire Banking Co., Nashua.....	670,104.55
44	New Ipswich.....	72,812.96
45	Newmarket.....	169,862.64
46	Newport.....	425,464.27
47	Norway Plains, Rochester.....	585,232.34
48	Ossipee Valley Ten-Cent, Freedom.....	128,877.26
49	People's, Manchester.....	635,287.86
50	Peterborough.....	612,358.74
51	Piscataqua, Portsmouth.....	404,523.65
52	Pittsfield.....	256,770.62
53	Portsmouth.....	3,217,238.55
54	Portsmouth Trust and Guaranty Co.....	388,656.27
55	Rochester.....	335,640.99
56	Rollinsford, Salmon Falls.....	517,446.91
57	Sandwich.....	75,075.59
58	Savings Bank for County of Strafford, Dover.....	3,016,495.31
59	Security, Winchester.....	131,029.04
60	Somersworth, Great Falls.....	856,957.33
61	Squamscott, Exeter.....	22,255.04
62	Sullivan Savings Institution, Claremont.....	1,125,943.92
63	Union Five-Cent, Exeter.....	346,247.89
64	Walpole.....	146,550.81
65	Wilton.....	74,445.88
66	Wolfeborough.....	102,719.12
		\$47,106,918.99

of their liabilities and assets at the close of business, March 31, 1886.

Number.	Surplus.	Guaranty fund.	Miscellaneous indebtedness.	Totals.
1	\$1,737.01	\$1,380.52	.....	\$63,323.21
2	168,855.95	165,000.00	.....	3,472,148.24
3	2,455.80	3,204.19	\$14,256.54	69,348.37
4	41,920.90	25,000.00	.....	701,208.46
5	14,692.32	26,000.00	.....	511,787.55
6	53,939.92	105,000.00	.....	2,203,687.37
7	11,173.86	3,000.00	.....	244,930.99
8	3,108.79	9,175.00	.....	239,338.34
9	.....	26,000.00	.....	549,489.86
10	155.18	50.00	.....	21,061.56
11	1,864.79	1,917.27	641.26	63,213.23
12	31,080.06	15,000.00	.....	801,577.59
13	3,562.46	8,435.00	.....	177,725.48
14	1,820.98	1,000.14	.....	67,124.76
15	6,625.42	13,000.00	.....	360,729.43
16	99.00	475.70	.....	29,562.84
17	4,736.17	2,500.00	.....	151,054.45
18	983.77	2,053.93	.....	87,912.11
19	18,590.26	23,162.34	.....	671,380.92
20	2,138.12	1,668.74	.....	93,461.95
21	14,095.77	50,000.00	.....	448,966.13
22	38,916.62	72,000.00	.....	772,637.10
23	913.24	10,825.12	.....	232,531.52
24	6,654.93	6,500.00	.....	313,571.02
25	20,013.81	100,000.00	.....	2,119,134.11
26	34,920.74	30,000.00	.....	869,674.97
27	20,864.39	6,343.72	.....	213,862.87
28	4,305.64	1,539.22	.....	276,153.97
29	49,686.39	18,990.92	.....	781,587.21
30	12,986.01	22,000.00	.....	724,789.75
31	77,720.48	48,000.00	1,599.44	1,833,478.25
32	241,179.08	190,000.00	6,479.82	5,025,582.06
33	10,585.90	4,000.00	10,000.00	107,331.60
34	7,040.19	5,020.81	.....	237,411.02
35	13,007.57	6,700.00	1,205.74	422,337.61
36	14,538.16	18,400.00	.....	405,949.83
37	31,605.56	40,000.00	.....	929,692.22
38	78,418.45	110,000.00	.....	2,276,514.44
39	21,913.30	35,000.00	.....	904,074.52
40	6,218.92	12,714.26	.....	455,854.66
41	92,455.38	125,000.00	.....	2,777,777.01
42	82,088.01	135,000.00	.....	2,843,801.95
43	35,224.98	75,000.00	12,809.81	792,639.34
44	5,605.31	3,000.00	.....	81,418.27
45	870.74	1,000.00	.....	171,733.38
46	4,327.27	22,000.00	11,318.06	463,109.60
47	13,140.52	5,014.75	.....	603,387.61
48	5,245.39	5,000.00	.....	139,122.65
49	55,355.65	100,000.00	.....	790,643.51
50	13,955.59	23,297.11	209.59	649,821.03
51	12,643.89	5,000.00	.....	422,167.54
52	12,448.19	6,000.00	2,898.23	278,117.04
53	190,804.18	145,901.02	.....	3,553,943.75
54	9,454.37	100,000.00	.....	498,110.64
55	15,421.54	7,192.54	.....	358,255.07
56	58,582.70	25,000.00	.....	601,029.61
57	2,429.94	1,526.16	.....	79,031.69
58	66,984.00	123,926.25	.....	3,207,405.56
59	5,225.51	1,875.00	312.44	138,441.99
60	26,000.00	40,700.15	.....	923,657.48
61	2,650.95	733.00	.....	25,638.99
62	21,773.17	60,000.00	.....	1,207,717.09
63	6,005.29	5,070.00	.....	357,323.18
64	4,492.33	5,100.00	484.15	156,627.29
65	4,819.21	3,800.00	.....	83,065.09
66	14,261.93	1,550.00	.....	118,531.05
	\$1,837,391.95	\$2,258,742.86	\$61,715.08	\$51,264,768.88

TABLE No. 6—

Number.	NAMES.	Loans on real estate.	Loans on personal se- curity.	Loans on collateral security.
1	Alton.....	\$36,879.19	\$9,126.10	\$1,425.94
2	Amoskeag, Manchester.....	1,341,991.19	426,378.17	402,190.07
3	Ashland.....	46,975.19	13,627.39	4,769.05
4	Belknap, Laconia.....	405,942.00	83,690.94	28,387.30
5	Bristol.....	374,267.19	8,475.63	16,661.00
6	Cheshire Provident Instit'n, Keene	1,088,994.44	100,845.40	96,469.11
7	City, Nashua.....	117,074.44	39,187.54	41,587.30
8	Cocheco, Dover.....	42,283.70	20,323.20	28,095.16
9	Connecticut River, Charlestown...	314,432.24	49,536.37	8,780.00
10	Contocook Valley, Peterborough.	12,925.00	845.00	.....
11	Conway.....	40,427.45	13,273.98	.....
12	Dartmouth, Hanover.....	356,437.68	9,906.02	11,224.60
13	Dover Five-Cent.....	52,963.47	8,585.28	24,050.99
14	Epping.....	34,692.24	13,735.09	1,500.00
15	Farmington.....	287,490.00	9,863.93	4,200.00
16	Farmers', Pittsfield.....	17,395.00	4,136.57	5,860.00
17	Fitzwilliam.....	88,266.14	10,595.64	2,550.00
18	Francestown.....	52,148.17	6,960.96	2,020.00
19	Franklin.....	299,033.78	96,786.25	119,989.44
20	Gorham Five-Cent.....	57,900.85	27,525.16	7,975.94
21	Guaranty, Keene.....	252,510.85	6,375.00	9,880.00
22	Guaranty, Manchester.....	458,222.52	15,350.00	87,447.79
23	Hinsdale.....	155,285.56	10,465.75	.....
24	Iona, Tilton.....	212,271.80	45,491.66	17,262.20
25	Keene Five-Cents.....	1,241,428.26	105,653.33	90,873.94
26	Laconia.....	434,686.50	89,894.00	25,292.00
27	Lake Village.....	156,786.42	10,338.37	4,400.02
28	Lancaster.....	130,064.48	8,704.38	5,215.87
29	Lebanon.....	623,776.72	4,126.95	10,100.00
30	Littleton.....	338,548.32	172,111.31	72,052.24
31	Loan and Trust, Concord.....	796,371.87	186,793.70	219,010.00
32	Manchester.....	1,498,157.00	987,999.59	1,072,997.96
33	Mason Village.....	18,840.05	5,260.00	.....
34	Mechanics', Manchester.....	109,554.67	39,980.08	27,900.27
35	Mechanics', Nashua.....	204,323.01	123,713.23	7,311.48
36	Meredith Village.....	377,036.89	7,030.00	2,270.00
37	Merrimack County, Concord.....	355,182.00	36,290.00	64,562.11
38	Merrimack River, Manchester....	493,718.50	123,447.97	87,388.88
39	Milford.....	585,252.43	.....	5,500.00
40	Monadnock, East Jaffrey.....	270,092.79	11,031.37	9,955.00
41	Nashua.....	992,442.80	31,725.00	25,127.00
42	New Hampshire, Concord.....	533,670.00	96,630.00	105,275.00
43	New Hamp. Banking Co., Nashua..	636,867.55	.....	.....
44	New Ipswich.....	45,527.00	1,638.70	.....
45	Newmarket.....	41,303.07	57,611.25	7,372.75
46	Newport.....	248,199.70	15,057.00	33,450.00
47	Norway Plains, Rochester.....	35,250.00	144,036.82	42,977.73
48	Ossipee Valley Ten-Cent, Freedom	35,617.08	83,898.97	6,944.84
49	People's, Manchester.....	699,020.75	24,477.50	7,250.00
50	Peterborough.....	284,502.95	21,140.72	26,515.00
51	Piscataqua, Portsmouth.....	185,000.67	6,100.00	45,622.00
52	Pittsfield.....	137,836.54	39,862.04	39,661.18
53	Portsmouth.....	1,695,344.06	41,995.49	76,943.57
54	Portsmouth Trust & Guaranty Co.	248,214.64	1,405.00	840.00
55	Rochester.....	204,048.01	99,687.12	22,433.43
56	Rollinsford, Salmon Falls.....	222,173.65	38,735.00	11,350.00
57	Sandwich.....	34,689.29	901.00	.....
58	Savings Bank for County of Straff'd	333,106.67	102,666.10	24,000.00
59	Security, Winchester.....	96,186.74	8,725.25	8,900.00
60	Somersworth, Great Falls.....	126,655.00	56,200.00	47,515.00
61	Squamscott, Exeter.....	19,330.00	785.00	2,700.00
62	Sullivan Savings Instit'n, Clarem't	702,837.17	61,793.50	66,649.56
63	Union Five-Cent, Dover... ..	182,911.33	28,014.50	11,050.00
64	Walpole.....	89,143.50	8,850.42	1,560.00
65	Wilton.....	63,136.74	4,298.81	.....
66	Wolfeborough.....	50,769.51	30,181.41	12,209.58
		\$21,727,554.68	\$3,949,877.91	\$3,263,502.30

Continued.

Number.	United States and state bonds.	County, city, town and dis- trict bonds.	Railroad stock.	Railroad bonds.	Bank stock.
1	\$5,900.00	.....	\$3,035.00	\$3,265.58	.....
2	150,000.00	\$132,375.00	231,770.00	255,720.00	\$234,400.00
3	.....	.....	.....	.....	.....
4	9,950.00	26,050.00	5,000.00	54,000.00	2,800.00
5	.....	25,166.40	.....	11,000.00	8,215.00
6	.....	332,361.88	72,162.50	122,913.33	78,969.13
7	100.00	.....	11,440.00	2,878.42	19,895.00
8	.....	.....	18,626.25	89,492.75	30,525.23
9	.....	66,656.05	.....	12,800.00	11,298.00
10	.....	1,975.00	.....	.....	.....
11	.....	.....	.....	.....	.....
12	.....	120,414.00	2,900.00	229,954.20	15,400.00
13	.....	.....	.....	71,797.00	14,292.00
14	.....	.....	.....	8,260.00	1,167.67
15	.....	1,100.00	.....	.....	40,800.00
16	.....	1,011.40	.....	.....	.....
17	.....	7,727.00	.....	7,024.17	7,851.00
18	.....	5,700.00	.....	1,000.00	10,108.75
19	.....	5,100.00	15,500.00	90,500.00	25,600.00
20	.....	.....	.....	.....	.....
21	.....	31,000.00	42,850.00	.....	33,715.00
22	.....	17,800.00	67,120.36	62,250.00	20,320.00
23	.....	38,000.00	.....	.....	24,070.42
24	.....	10,000.00	4,000.00	13,000.00	.....
25	.....	249,926.00	38,781.25	31,743.75	100,691.00
26	30,600.00	87,125.00	5,000.00	43,400.00	23,300.00
27	100.00	24,082.34	.....	3,765.00	8,630.00
28	.....	96,669.87	2,520.00	19,055.88	2,000.00
29	.....	33,209.00	.....	24,800.00	30,792.00
30	.....	30,775.00	.....	.....	46,266.67
31	25,550.00	272,563.41	20,000.00	102,837.50	42,851.75
32	124,000.00	317,792.50	84,600.00	726,675.67	63,249.75
33	.....	18,992.50	26,698.75	25,896.88	8,470.00
34	1,050.00	.....	4,756.25	19,864.44	25,000.00
35	.....	50,444.30	.....	2,980.00	17,250.00
36	.....	3,850.00	200.00	5,390.00	.....
37	.....	88,030.00	52,366.75	196,175.00	8,460.00
38	.....	496,436.16	72,086.50	744,391.67	114,931.88
39	.....	240,800.00	600.00	9,000.00	21,200.00
40	.....	48,912.50	.....	38,903.77	16,537.62
41	10,000.00	593,857.50	233,364.79	353,250.00	307,185.00
42	61,000.00	447,000.00	126,905.00	1,063,500.00	4,200.00
43	.....	82,236.00	5,520.00	11,000.00	18,300.00
44	.....	.....	.....	9,000.00	.....
45	.....	.....	.....	.....	15,200.00
46	200.00	51,345.00	50,603.00	28,600.00	17,913.33
47	.....	157,200.00	.....	123,767.50	8,400.00
48	.....	8,356.45	.....	.....	1,300.00
49	20,000.00	.....	.....	11,000.00	.....
50	.....	95,495.00	71,675.28	39,645.00	62,366.00
51	.....	140,140.41	.....	.....	37,097.13
52	.....	10,799.12	7,050.00	20,630.00	500.00
53	107,000.00	895,948.46	12,000.00	.....	34,629.00
54	.....	93,419.77	12,450.00	55,350.00	3,175.00
55	.....	.....	.....	.....	10,000.00
56	.....	161,750.00	.....	46,800.00	50,420.00
57	.....	23,529.00	2,145.00	11,965.00	.....
58	.....	1,324,783.00	78,932.26	1,369,316.25	15,000.00
59	.....	9,210.00	.....	.....	7,370.00
60	20,000.00	353,200.00	.....	164,650.00	46,040.00
61	.....	.....	.....	619.37	475.00
62	.....	.....	44,250.00	234,326.15	59,404.00
63	.....	96,500.00	6,500.00	10,000.00	7,200.00
64	.....	21,900.00	.....	20,610.00	5,000.00
65	.....	6,971.57	.....	.....	5,156.00
66	.....	.....	.....	.....	8,595.00
	\$565,450.00	\$7,455,686.85	\$1,427,108.98	\$6,544,764.28	\$1,833,977.57

TABLE No. 6—

Number.	NAMES.	Other investments.	Manufacturing stock.	Real estate.
1	Alton.....			\$805.00
2	Amoskeag, Manchester.....	\$116,980.83	\$82,000.00	
3	Ashland.....			
4	Belknap, Laconia.....	42,350.00	5,150.00	16,000.00
5	Bristol.....	60,600.42		
6	Cheshire Provident Instit'n, Keene	179,790.23		52,982.91
7	City, Nashua.....	1,800.00	4,000.00	
8	Cocheco, Dover.....			
9	Connecticut River, Charlestown...	* 53,853.09		
10	Contoocook Valley, Peterborough.	5,000.00		
11	Conway.....			
12	Dartmouth, Hanover.....	17,299.07		8,000.00
13	Dover Five-Cent.....			
14	Epping.....			6,950.00
15	Farmington.....	11,000.00		4,000.00
16	Farmers', Pittsfield.....	898.37		
17	Fitzwilliam.....	24,400.00		
18	Francestown.....	7,300.00		823.09
19	Franklin.....	13,000.00		
20	Gorham Five-Cent.....	608.89		
21	Guaranty, Keene.....	† 69,384.89		
22	Guaranty, Manchester.....	35,155.00		
23	Hinsdale.....			
24	Iona, Tilton.....			3,648.80
25	Keene Five-Cents.....	204,714.40		
26	Laconia.....	87,294.68		
27	Lake Village.....			
28	Lancaster.....	1,900.00		
29	Lebanon.....	9,143.55		
30	Littleton.....	35,710.00		
31	Loan and Trust, Concord.....	‡ 137,728.30	20,000.00	
32	Manchester.....	145,109.59	5,000.00	
33	Mason Village.....	2,000.00		
34	Mechanics', Manchester.....	7,000.00		
35	Mechanics', Nashua.....	16,315.59		
36	Meredith Village.....	700.00		
37	Merrimack County, Concord.....	84,950.00		2,800.00
38	Merrimack River, Manchester.....	33,845.00		
39	Milford.....			
40	Monadnock, East Jaffrey.....	53,973.75		
41	Nashua.....	179,586.23		
42	New Hampshire, Concord.....	320,397.00	49,600.00	6,362.59
43	New Hampshire Banking Co.....	† 17,501.05		
44	New Ipswich.....			1,000.00
45	Newmarket.....	6,263.08	1,000.00	
46	Newport.....	7,500.00		
47	Norway Plains, Rochester.....			5,635.74
48	Ossipee Valley Ten-Cent, Freedom.			
49	People's, Manchester.....			
50	Peterborough.....	12,249.55		16,888.62
51	Piscataqua, Portsmouth.....			
52	Pittsfield.....	17,950.00		4,257.64
53	Portsmouth.....	527,132.88		10,000.00
54	Portsmouth Trust and Guaranty Co	10,655.00		
55	Rochester.....			
56	Rollinsford, Salmon Falls.....	623.00		
57	Sandwich.....		1,050.00	
58	Savings Bank, County of Strafford	4,250.00		
59	Security, Winchester.....	5,900.00		
60	Somersworth, Great Falls.....			91,995.14
61	Squamscott, Exeter.....			
62	Sullivan Savings Institution.....	22,700.00	850.00	3,000.00
63	Union Five-Cent, Exeter.....		3,100.00	
64	Walpole.....	6,813.37	2,750.00	
65	Wilton.....	215.00		2,500.00
66	Wolfeborough.....	4,000.00		
		\$2,605,280.92	\$174,500.00	\$237,649.53

* Including interest. † Including expenses and interest. ‡ Including expenses.

Continued.

Number.	Real estate acquired.	Bank fix- tures.	Balance on deposit.	Cash.	Total.
1	.....	\$407.55	.....	\$2,478.85	\$63,323.21
2	.....	.....	\$87,025.37	11,317.61	3,472,148.24
3	.....	769.41	3,199.52	7.81	69,348.37
4	\$540.68	500.00	18,547.27	2,300.27	701,208.46
5	3,508.74	.....	3,000.00	893.17	511,787.55
6	8,625.60	.....	66,469.58	3,103.26	2,203,687.37
7	2,800.00	150.00	3,362.57	755.72	244,930.99
8	3,674.99	.....	6,317.06	.....	239,338.34
9	1,400.00	.....	30,734.11	.....	549,489.86
10	.....	63.36	224.77	28.43	21,061.56
11	3,700.00	.....	3,059.06	2,752.74	63,213.23
12	3,800.00	.....	25,399.04	844.98	801,577.59
13	.....	.....	6,036.74	.....	177,725.48
14	.....	384.08	102.98	332.70	67,124.76
15	.....	.....	2,275.50	.....	360,729.43
16	.....	.....	261.50	.....	29,562.84
17	600.00	.....	1,628.91	411.59	151,054.45
18	860.00	87.50	327.39	576.25	87,912.11
19	.....	500.00	4,371.83	999.62	671,380.92
20	.....	.....	.....	60.00	93,461.95
21	.....	.....	2,019.47	1,230.92	448,966.13
22	2,720.53	.....	5,000.90	1,250.00	772,637.10
23	650.00	723.92	629.67	2,706.20	232,531.52
24	.....	.....	6,580.00	1,324.56	313,571.02
25	6,668.43	.....	38,401.71	10,252.04	2,119,134.11
26	15,400.00	.....	22,336.40	5,346.39	869,674.97
27	2,209.59	400.00	2,345.44	805.69	213,862.87
28	.....	700.00	5,989.97	3,333.52	276,153.97
29	22,771.75	1,000.00	13,666.79	8,200.45	781,587.21
30	.....	.....	28,751.51	574.70	724,789.75
31	9,390.24	.....	3.27	378.21	1,833,478.25
32	.....	.....	.....	.....	5,025,582.06
33	.....	.....	747.15	426.27	107,331.60
34	.....	.....	2,305.31	.....	237,411.02
35	.....	.....	.....	.....	422,337.60
36	3,325.48	.....	2,993.18	3,154.28	405,949.83
37	.....	.....	38,510.62	2,365.74	929,692.22
38	.....	.....	110,267.88	.....	2,276,514.44
39	24,000.00	1,484.92	15,916.50	320.67	904,074.52
40	1,577.39	1,850.00	3,020.47	.....	455,854.66
41	.....	.....	35,984.44	15,254.25	2,777,777.01
42	.....	.....	16,307.57	12,954.79	2,843,801.95
43	3,497.23	.....	14,490.09	3,227.42	792,639.34
44	10,776.00	.....	1,934.09	11,542.48	81,418.27
45	42,030.89	.....	952.34	.....	171,733.38
46	200.00	.....	10,041.57	.....	463,109.60
47	74,636.14	.....	11,483.68	.....	603,387.61
48	.....	400.00	1,548.21	1,057.10	139,122.65
49	.....	.....	16,657.74	12,237.52	790,643.51
50	.....	1,267.69	3,403.67	9,171.02	649,821.03
51	.....	.....	7,100.54	1,106.79	422,167.54
52	5,532.52	.....	.....	338.00	278,117.04
53	84,540.75	.....	59,914.91	8,495.63	3,553,943.75
54	57,876.00	.....	13,561.89	1,163.34	498,110.64
55	13,581.00	.....	2,518.28	5,987.23	358,255.07
56	67,909.66	.....	1,268.30	.....	601,029.61
57	2,975.00	350.00	1,563.70	783.49	79,031.69
58	2,142.93	.....	13,122.12	86.33	3,207,405.56
59	1,300.00	.....	850.00	.....	138,441.99
60	.....	.....	.....	17,432.34	923,657.48
61	.....	.....	1,600.00	129.62	25,638.99
62	2,600.00	.....	8,000.00	1,306.71	1,207,717.09
63	7,064.72	705.00	2,905.69	1,371.94	357,323.18
64	.....	.....	.....	.....	156,627.29
65	.....	.....	.....	792.97	83,065.09
66	5,268.35	600.00	5,225.78	1,681.42	118,531.05
	\$500,154.81	\$12,343.43	\$835,630.23	\$174,653.57	\$51,264,768.88

TABLE No. 7.— Alphabetical list of the Savings Banks, with statements

Number.	NAMES.	Deposits.
1	Alton.....	\$64,117.92
2	Amoskeag, Manchester	3,368,840.68
3	Ashland.....	52,272.85
4	Belknap, Laconia... ..	696,668.14
5	Bristol.....	500,660.51
6	Cheshire Provident Institution, Keene.....	2,171,794.57
7	City, Nashua.....	272,747.11
8	Coheco, Dover.....	235,316.09
9	Connecticut River, Charlestown.....	556,295.74
10	Contoocook Valley, Peterborough.....	27,686.10
11	Conway	67,180.34
12	Dartmouth, Hanover.....	783,396.50
13	Dover Five-Cent.....	191,989.94
14	Epping.....	64,487.53
15	Farmington	419,090.51
16	Farmers', Pittsfield.....	39,689.64
17	Fitzwilliam	147,380.11
18	Francestown.....	100,320.00
19	Franklin	645,960.32
20	Gorham Five-Cent	65,233.70
21	Guaranty, Keene.....	547,470.97
22	Guaranty, Manchester.. ..	726,084.58
23	Hinsdale	238,050.33
24	Iona, Tilton.....	316,166.14
25	Keene Five-Cents	2,224,081.45
26	Laconia	868,761.48
27	Lake Village.....	223,753.97
28	Lancaster	330,867.32
29	Lebanon.....	780,499.82
30	Littleton	712,344.53
31	Loan and Trust, Concord.....	1,844,374.78
32	Manchester	4,781,868.06
33	Mason Village.....	73,740.96
34	Mechanics', Manchester	243,362.22
35	Mechanics', Nashua.....	470,538.32
36	Meredith Village.....	405,109.44
37	Merrimack County, Concord.....	955,298.20
38	Merrimack River, Manchester.....	2,256,725.88
39	Milford Five-Cent.....	969,166.48
40	Monadnock, East Jaffrey.....	456,461.08
41	Nashua.....	2,776,003.08
42	New Hampshire, Concord	2,825,089.16
43	New Hampshire Banking Co., Nashua.....	763,643.93
44	New Ipswich.....	71,254.32
45	Newmarket	179,820.40
46	Newport	450,627.11
47	Norway Plains, Rochester.....	602,712.66
48	Ossipee Valley Ten-Cent, Freedom.....	139,535.70
49	People's, Manchester.....	692,608.47
50	Peterborough.....	639,036.61
51	Piscataqua, Portsmouth.....	451,725.57
52	Pittsfield	290,300.72
53	Portsmouth	3,310,197.43
54	Portsmouth Trust and Guaranty Co.....	431,543.74
55	Rochester.....	381,432.78
56	Rollinsford, Salmon Falls	555,216.78
57	Sandwich	71,225.08
58	Savings Bank for County of Strafford, Dover	3,278,408.09
59	Security, Winchester	166,250.80
60	Somersworth, Great Falls.....	912,216.86
61	Squamscott, Exeter.....	26,628.19
62	Sullivan Savings Institution, Claremont.....	1,193,860.15
63	Union Five-Cent, Dover.....	366,240.57
64	Walpole.....	147,098.69
65	Wilton	83,262.04
66	Wolfeborough	117,969.47
		\$50,822,762.71

BANK COMMISSIONERS' REPORT.

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of their liabilities and assets at the close of business, March 31, 1887.

Number.	Surplus.	Guaranty fund.	Miscellaneous indebtedness.	Total.
1	\$2,753.37	\$1,620.52		
2	146,366.78	175,000.00		\$68,491.81
3	10,269.65	3,146.19		3,690,207.46
4	42,410.05	29,000.00		65,688.69
5	13,953.83	30,000.00		768,078.19
6	73,942.40	110,000.00		544,614.34
7	11,746.71	3,000.00		2,355,736.97
8	3,114.40	10,400.00		287,493.82
9		26,000.00		248,830.49
10	330.56	200.00		582,295.74
11	2,229.74	2,160.08		28,216.66
12	35,620.31	18,000.00	\$1,532.88	73,103.04
13	3,459.94	9,000.00		837,016.81
14	1,324.43	1,128.24		204,449.88
15	12,690.23	15,000.00		66,940.20
16	1,059.05			446,780.74
17	5,256.69	3,000.00		40,748.69
18	1,395.93	2,553.93		155,636.80
19	24,861.27	26,183.01		104,269.86
20	19,147.05	1,668.74		697,004.60
21	22,924.92	80,000.00		86,049.49
22	49,628.28	100,000.00		650,395.89
23	3,398.93	11,902.51		875,712.86
24	6,488.79	7,900.00		253,351.77
25	28,536.90	100,000.00		330,554.93
26	33,142.77	35,000.00		2,352,618.35
27	22,204.00	7,434.82		936,904.25
28	9,085.98	2,463.36		253,392.79
29	51,219.26	22,400.00		342,416.66
30	20,192.59	25,000.00		854,119.08
31	91,480.75	60,000.00		757,537.12
32	265,046.58	210,000.00		1,995,855.53
33	7,925.61	4,000.00		5,256,914.64
34	8,202.88	6,212.94		85,666.57
35	16,572.24	8,500.00	734.41	258,512.45
36	19,529.01	20,000.00	9,000.00	504,610.56
37	30,400.27	40,000.00		444,638.45
38	73,508.73	110,000.00		1,028,698.47
39	28,208.77	38,000.00		2,440,234.61
40	6,613.98	15,152.92		1,035,375.25
41	96,886.75	130,000.00		478,227.98
42	120,541.07	150,000.00		3,002,889.83
43	53,576.73	100,000.00		3,095,630.23
44	6,993.31	3,400.00	5,353.38	922,574.04
45	1,180.95	1,000.00		81,647.63
46	15,610.52	23,000.00		182,001.35
47	11,764.11	2,183.64		489,237.63
48	3,270.66	5,000.00		616,660.41
49	63,530.22	100,000.00		147,806.36
50	16,441.81	26,408.64		856,138.69
51	9,822.02	6,000.00	72.40	681,959.46
52	3,784.69	6,500.00		467,547.59
53	217,615.77	162,924.10		300,585.41
54	15,121.20	100,000.00		3,690,737.30
55	18,915.63	7,192.54		546,664.94
56	70,543.10	25,000.00		407,540.95
57	2,876.37	1,526.16		650,759.88
58	56,714.27	180,574.25		75,627.61
59	5,903.73	2,625.00		3,515,696.61
60	40,855.68	28,000.00		174,779.53
61	2,660.03	733.00		981,072.54
62	25,328.44	60,000.00		30,021.22
63	2,763.63			1,279,188.59
64	4,722.64	5,900.00		369,004.20
65	8,508.09	4,000.00		157,721.33
66	17,960.63	1,550.00		95,770.13
				137,480.10
	\$2,100,135.68	\$2,504,544.59	\$16,693.07	\$55,444,136.05

TABLE No. 7—

Number.	NAMES.	Loans on real estate.	Loans on personal se- curity.	Loans on collateral security.
1	Alton.....	\$40,744.87	\$10,130.72	\$2,257.69
2	Amoskeag.....	1,436,517.82	548,915.88	343,979.34
3	Ashland.....	54,082.10	6,530.12	4,294.05
4	Belknap.....	469,754.47	72,709.85	29,924.77
5	Bristol.....	401,834.86	7,795.86	10,740.80
6	Cheshire Provident Institution....	1,257,240.59	92,987.08	94,634.99
7	City, Nashua.....	140,331.35	55,984.75	37,287.83
8	Cochecho.....	48,078.87	20,823.20	34,323.07
9	Connecticut River.....	350,884.46	43,607.18	24,650.00
10	Contoocook Valley.....	19,098.00	638.00	.....
11	Conway.....	44,376.88	13,676.98	3,127.00
12	Dartmouth.....	402,140.00	7,216.27	8,415.00
13	Dover Five-Cent.....	68,256.00	10,782.28	14,070.00
14	Epping.....	43,613.00	10,516.85	1,825.00
15	Farmington.....	365,129.17	10,874.90	2,914.25
16	Farmers'.....	23,245.00	9,931.57	5,734.00
17	Fitzwilliam.....	91,129.31	8,790.28	2,350.00
18	Francestown.....	62,703.66	5,813.18	4,811.41
19	Franklin.....	337,772.25	88,993.73	96,781.44
20	Gorham Five-Cent.....	54,955.17	23,827.92	6,259.13
21	Guaranty, Keene.....	395,701.85	14,575.00	6,950.00
22	Guaranty, Manchester.....	523,808.52	20,704.09	101,811.39
23	Hinsdale.....	152,626.11	12,004.28	.....
24	Iona.....	261,115.71	24,384.66	11,993.00
25	Keene Five-Cents.....	1,376,688.86	112,472.34	120,546.54
26	Laconia.....	507,077.40	71,932.55	44,674.00
27	Lake Village.....	197,574.36	11,800.76	2,593.00
28	Lancaster.....	184,844.46	12,464.08	9,237.60
29	Lebanon.....	693,260.69	5,991.77	17,199.00
30	Littleton.....	375,580.81	161,530.17	78,695.93
31	Loan and Trust, Concord.....	987,599.00	156,851.92	184,419.50
32	Manchester.....	1,900,664.72	748,845.21	1,017,708.48
33	Mason Village.....	17,535.00	3,410.00	614.00
34	Mechanics', Manchester.....	136,718.52	39,860.47	19,262.77
35	Mechanics', Nashua.....	311,457.59	98,065.11	350.00
36	Mereditth Village.....	422,267.97	8,356.98	1,320.00
37	Merrimack County, Concord.....	432,645.50	71,126.00	57,647.87
38	Merrimack River, Manchester....	686,886.94	91,076.25	101,219.02
39	Milford.....	681,622.51	.....	16,025.00
40	Monadnock.....	304,301.26	4,925.00	16,725.00
41	Nashua.....	1,122,931.17	39,125.00	33,807.00
42	New Hampshire, Concord.....	648,760.00	93,680.00	104,715.00
43	New Hampshire Banking Co.....	679,892.96	54,301.52	27,919.34
44	New Ipswich.....	54,037.00	963.00	.....
45	Newmarket.....	45,519.06	50,599.42	11,090.92
46	Newport.....	245,364.23	20,887.50	33,600.00
47	Norway Plains.....	83,650.00	105,266.75	46,700.02
48	Ossipee Valley Ten-Cent.....	51,225.04	87,883.24	6,061.38
49	People's.....	723,232.60	41,064.02	12,150.00
50	Peterborough.....	330,975.74	17,619.10	20,074.00
51	Piscataqua.....	212,575.82	15,152.92	48,290.27
52	Pittsfield.....	164,607.89	30,356.85	43,216.00
53	Portsmouth.....	1,846,411.29	78,387.19	95,083.02
54	Portsmouth Trust and Guar. Co....	291,898.14	15,590.00	740.00
55	Rochester.....	250,167.47	82,127.65	30,250.12
56	Rollinsford.....	226,835.00	70,773.32	14,079.00
57	Sandwich.....	28,705.33	1,879.50	6,162.16
58	Savings Bank, Strafford County....	570,836.15	33,132.00	390,050.00
59	Security.....	121,717.08	11,643.90	9,400.00
60	Somersworth.....	126,837.05	55,624.91	58,329.50
61	Squamscott.....	24,685.75	1,300.00	2,000.00
62	Sullivan Savings Institution.....	772,765.02	53,180.26	69,097.10
63	Union Five-Cent.....	202,486.33	30,124.42	10,845.00
64	Walpole.....	92,427.50	7,649.14	2,502.10
65	Wilton.....	73,472.21	3,654.58	.....
66	Wolfeborough.....	66,688.16	34,535.18	11,900.96
		\$25,320,569.60	\$3,757,424.61	\$3,625,434.76

Continued.

Number.	U. S. and state bonds.	County, city, town and dis- trict bonds.	Bank stock.	Railroad stock.	Railroad bonds.
1				\$3,035.00	\$3,265.58
2	\$150,000.00	\$132,075.00	\$232,400.00	283,520.00	295,720.00
3					
4	9,950.00	43,750.00	2,800.00	5,000.00	44,000.00
5		20,472.00	6,625.00		11,000.00
6		329,167.72	84,769.13	72,162.50	112,250.00
7			19,695.00	19,274.37	2,878.42
8			30,525.23	24,932.50	81,392.75
9		63,995.98	17,548.00		18,700.00
10		1,975.00			
11					
12		127,604.00	15,400.00	2,900.00	225,946.25
13			14,292.00		71,797.00
14			1,167.67		8,260.00
15		9,100.00	40,800.00		
16			1,050.00		
17		7,727.00	7,851.00		4,934.17
18		8,350.00	10,442.50		
19			25,600.00	20,500.00	90,500.00
20					
21		31,000.00	37,775.00	49,827.50	4,000.00
22		18,800.00	18,650.00	68,734.00	54,000.00
23		45,000.00	36,070.42		
24		10,000.00		1,000.00	14,500.00
25		233,528.50	90,691.00	38,781.25	51,743.75
26	30,600.00	91,868.40	23,300.00	5,000.00	48,400.00
27	100.00	22,082.34	10,630.00		3,765.00
28		93,494.70	2,000.00	2,520.00	19,055.88
29		26,209.00	32,792.00		24,950.00
30		26,775.00	49,766.67		
31	25,550.00	250,776.03	42,851.75	20,000.00	92,837.50
32	124,000.00	342,111.15	65,124.75	84,600.00	748,069.67
33		16,872.50	8,470.00	16,776.25	16,671.88
34	1,050.00		25,000.00	4,756.25	19,864.44
35		26,034.30	28,250.00		2,980.00
36		3,850.00		200.00	5,390.00
37		77,780.00	15,910.00	65,876.75	179,315.00
38		529,911.16	120,266.88	63,500.00	784,537.50
39		245,600.00	21,200.00	600.00	9,000.00
40		40,470.00	19,362.62		39,877.52
41	10,000.00	304,323.61	300,650.00	273,804.79	301,500.00
42	61,000.00	440,000.00	6,700.00	172,205.00	1,090,500.00
43		77,755.00	24,000.00	1,920.00	8,100.00
44					9,000.00
45			16,200.00		
46	200.00	47,350.00	22,509.33	50,603.00	28,600.00
47		139,600.00	8,400.00		146,652.50
48			1,300.00		
49	20,000.00				11,000.00
50		86,603.00	64,966.00	69,175.28	54,332.09
51		147,448.67	41,657.13		
52		9,545.00	500.00	2,250.00	18,500.00
53	107,000.00	818,595.02	39,767.50	12,000.00	
54		97,082.58	3,175.00	12,450.00	45,000.00
55			10,000.00		
56		151,550.00	54,420.00		56,800.00
57		22,640.41		5,040.00	5,980.00
58		1,242,992.50	15,000.00	79,386.09	1,141,513.75
59		9,710.00	7,370.00		
60	20,000.00	398,000.00	46,040.00		164,650.00
61			475.00		
62			58,664.00	41,650.00	235,763.65
63		74,500.00	7,200.00	6,500.00	
64		15,600.00	5,000.00		19,610.00
65		6,971.57	5,150.00		
66			8,595.00		
	\$559,450.00	\$6,966,647.14	\$1,906,815.58	\$1,580,480.53	\$6,427,104.30

TABLE No. 7—

Number.	NAMES.	Other investments.	Manufacturing stocks.	Real estate.
1	Alton.....	\$5,000.00		\$805.00
2	Amoskeag, Manchester.....	127,320.00	\$95,000.00	
3	Ashland.....			
4	Belknap, Laconia.....	27,150.00	5,150.00	16,000.00
5	Bristol.....	70,100.00		
6	Cheshire Provident Instit'n, Keene	151,861.50		60,299.47
7	City, Nashua.....	10,800.00		
8	Cocheco, Dover.....			
9	Connecticut River, Charlestown...	33,000.00		
10	Contoocook Valley, Peterborough.	6,000.00		
11	Conway.....	2,357.56		
12	Dartmouth, Hanover.....	14,597.07		8,000.00
13	Dover Five-Cent.....	2,000.00		
14	Epping.....			
15	Farmington.....	11,000.00		4,000.00
16	Farmers', Pittsfield.....	500.00		
17	Fitzwilliam.....	29,900.00		
18	Fracestown.....	7,800.00		457.10
19	Franklin.....	28,500.00		
20	Gorham Five-Cent.....	626.14		
21	Guaranty, Keene.....	97,300.00		
22	Guaranty, Manchester.....	23,000.00	10,955.00	
23	Hinsdale.....	5,387.48		
24	Iona, Tilton.....			480.00
25	Keene Five-Cents.....	269,014.40		
26	Laconia.....	97,000.00		
27	Lake Village.....			
28	Lancaster.....	2,200.00		
29	Lebanon.....	11,448.54		
30	Littleton.....	33,210.00		
31	Loan and Trust, Concord.....	191,260.00	12,000.00	
32	Manchester.....	162,887.50	57,500.00	
33	Mason Village.....	2,000.00		
34	Mechanics', Manchester.....	10,000.00	2,000.00	
35	Mechanics', Nashua.....	33,715.46	3,125.00	
36	Meredith Village.....		700.00	
37	Merrimack County, Concord.....	115,200.00	800.00	
38	Merrimack River, Manchester.....	47,501.43	2,345.00	
39	Milford Five-Cent.....	38,500.00		3,000.00
40	Monadnock, East Jaffrey.....	43,000.00		
41	Nashua.....	572,750.12		
42	New Hampshire, Concord.....	375,097.00	50,800.00	28,884.22
43	New Hamp. Banking Co., Nashua..	26,900.00		
44	New Ipswich.....	305.32		1,000.00
45	Newmarket.....	16,663.08	1,000.00	
46	Newport.....	12,500.00		
47	Norway Plains, Rochester.....	20,000.00		5,635.74
48	Ossipee Valley Ten-Cent, Freedom			
49	People's, Manchester.....	5,000.00		
50	Peterborough.....	12,249.55		15,388.62
51	Piscataqua, Portsmouth.....			
52	Pittsfield.....	24,050.00		4,257.64
53	Portsmouth.....	553,673.62		10,000.00
54	Portsmouth Trust & Guaranty Co.	32,550.51		
55	Rochester.....		5,000.00	
56	Rollinsford, Salmon Falls.....	600.00		
57	Sandwich.....			
58	Savings Bank for County of Straff'd	10,250.00		
59	Security, Winchester.....	12,900.00		
60	Somersworth, Great Falls.....			68,070.14
61	Squamscott, Exeter.....			
62	Sullivan Savings Instit'n, Clarem't	36,100.00		3,000.00
63	Union Five-Cent, Dover.....	20,000.00	4,080.00	
64	Walpole.....	7,500.00	2,750.00	
65	Wilton.....	150.00		2,500.00
66	Wolfeborough.....	4,300.00		
		\$3,454,676.28	\$253,205.00	\$231,777.93

Continued.

Number.	Real estate acquired.	Bank fixtures.	Balance on deposit.	Cash.	Total.
1		\$407.55		\$2,845.40	\$68,491.81
2			\$30,087.60	14,671.82	3,690,207.46
3		769.41	.22	12.79	65,688.69
4			31,826.09	10,063.01	768,078.19
5	\$2,846.95		12,238.11	960.76	544,614.34
6	4,117.55		91,742.63	4,503.81	2,355,736.97
7		600.00	438.33	203.77	287,493.82
8	3,678.79		5,076.08		248,830.49
9	1,400.00		28,498.33	11.79	582,295.74
10		220.56	263.99	21.11	28,216.66
11	3,657.00		4,152.15	1,755.47	73,103.04
12	2,800.00		21,998.22		837,016.81
13	14,833.20		8,419.40		204,449.88
14		384.08		1,173.60	66,940.20
15			2,962.42		446,780.74
16		249.65		38.47	40,748.69
17		550.00	1,615.11	789.93	155,636.80
18		87.50	3,155.97	648.54	104,269.86
19		500.00	6,967.49	889.69	697,004.60
20			251.81	129.32	86,049.49
21			11,286.41	1,980.13	650,395.89
22	11,281.21		18,649.27	5,319.38	875,712.86
23				2,263.48	253,351.77
24	4,810.00			2,271.56	330,554.93
25	4,844.79		47,243.70	7,063.22	2,352,618.35
26	9,200.00		5,509.26	2,342.64	936,904.25
27	2,209.59	875.00	1,050.25	712.49	253,392.79
28		700.00	13,058.53	2,841.41	342,416.66
29	3,886.01	1,000.00	29,628.89	8,253.18	854,119.08
30			31,622.21	356.33	757,537.12
31	9,437.94		16,482.58	5,789.31	1,995,855.53
32	3,900.00		1,503.16		5,256,914.64
33			2,179.53	1,137.41	85,666.57
34					258,512.45
35				633.10	504,610.56
36	2,275.51		197.03	80.96	444,638.45
37	2,800.00			9,597.35	1,028,698.47
38			12,990.43		2,440,234.61
39	1,984.92		17,638.49	204.33	1,035,375.25
40	2,219.19	1,850.00	5,497.39		478,227.98
41			25,874.79	18,123.35	3,002,889.83
42	2,300.00		7,006.59	13,982.42	3,095,630.23
43	8,222.38		12,279.29	1,283.55	922,574.04
44	11,087.00		4,781.15	474.16	81,647.63
45	39,577.35		1,351.52		182,001.35
46	935.00		23,375.71	3,312.86	489,237.63
47	46,213.64		14,541.76		616,660.41
48		400.00	455.30	481.40	147,806.36
49	5,000.00		4,868.38	33,823.69	856,138.69
50	1,042.51	1,000.00	1,090.47	7,443.10	681,959.46
51			1,661.93	760.85	467,547.59
52			2,685.64	616.39	300,585.41
53	76,559.77		47,451.07	5,808.82	3,690,737.30
54	45,140.79		1,374.38	1,663.54	546,664.94
55	14,559.21		1,058.78	14,377.72	407,540.95
56	66,047.66		9,654.90		650,759.88
57	2,817.60	350.00	1,069.28	983.33	75,627.61
58	15,952.80		16,405.65	177.67	3,515,696.61
59	1,300.00		738.55		174,779.53
60	22,350.00			21,170.94	981,072.54
61			1,200.00	360.47	30,021.22
62	4,070.00		4,000.00	898.56	1,279,188.59
63	6,364.72	1,180.00	2,643.34	3,080.39	369,004.20
64	4,000.00		682.59		157,721.33
65			3,871.77		95,770.13
66		600.00	8,708.36	2,152.44	137,480.10
	\$465,223.08	\$11,723.75	\$663,062.28	\$220,541.21	\$55,444,136.05

TABLE No. 8.

Showing the amount of deposits in each Savings Bank in the State, April 1, 1886, the amount invested in real estate, the balance subject to tax, tax paid, amount distributed to towns, and balance accruing to the Literary Fund.

BANKS.	Aggregate deposits.	Am't real estate in N. H.	Am't of real estate in other States.	Balance subject to tax.	Tax paid.	To towns.	To Literary Fund.
Alton.....	\$60,205.68	\$805.00	.....	\$59,400.68	\$594.01	\$518.87	\$22.08
Amoskeag.....	3,138,292.29	.....	.....	3,138,292.29	31,382.92	30,052.74	1,330.18
Ashland.....	49,481.84	.....	.....	49,481.84	494.23	494.23	.59
Belknap County.....	634,287.56	16,540.68	.....	617,746.88	6,177.47	5,977.13	200.34
Bristol.....	453,596.86	7,439.00	\$32,515.00	413,642.86	4,136.43	4,133.93	2.50
Cheshire Provident Institution.....	2,044,747.45	101,608.51	4,089.33	1,939,049.61	19,390.50	16,802.96	2,587.54
City, Nashua.....	225,751.78	2,800.00	.....	222,951.78	2,229.52	1,949.06	280.46
Cocheo.....	227,054.55	7,536.87	.....	219,517.68	2,193.07	1,923.07	272.11
Concord.....	413,320.00	.....	.....	413,320.00	4,133.20	4,008.46	124.74
Connecticut River.....	521,644.86	1,400.00	.....	520,244.86	5,202.45	4,350.70	851.75
Contoocook Valley.....	20,853.38	.....	.....	20,853.38	208.53	183.55	24.98
Gonway.....	58,789.91	3,863.00	.....	54,926.91	549.27	540.18	9.09
Dartmouth.....	755,497.00	.....	11,800.00	743,697.00	7,436.97	5,062.50	2,374.47
Dover Five-Cent.....	165,728.02	.....	.....	165,728.02	1,657.28	1,534.20	123.08
Epping.....	62,771.50	.....	.....	62,771.50	627.71	627.59	.12
Farmington.....	341,104.01	4,000.00	.....	337,104.01	3,371.04	3,280.98	90.06
Farmers'.....	28,988.14	.....	.....	28,988.14	289.88	289.88	.....
Fitzwilliam.....	143,818.28	600.00	.....	143,218.28	1,432.18	1,375.65	56.53
Francesstown.....	84,843.53	1,683.09	.....	83,160.44	831.60	831.33	8.87
Franklin.....	629,628.32	.....	.....	629,628.32	6,296.28	6,296.28	.....
Gorham.....	80,555.29	.....	.....	89,555.29	895.55	885.89	9.66
Guaranty, Keene.....	434,870.05	.....	.....	434,870.05	4,348.70	4,067.76	280.94
Guaranty, Manchester.....	710,609.04	.....	2,720.53	707,888.51	7,078.88	6,972.87	106.01
Hinsdale.....	220,793.16	650.00	.....	220,143.16	2,201.43	1,953.70	247.73
Iona.....	300,416.09	3,640.80	.....	296,775.29	2,967.75	2,901.27	66.48
Keene Five-Cents.....	1,999,120.00	6,668.00	.....	1,992,452.00	19,924.52	18,575.03	1,349.49
Laconia.....	805,258.77	37,469.00	.....	767,789.77	7,677.90	7,259.97	428.93
Lake Village.....	182,496.77	.....	.....	180,287.18	1,802.87	1,802.87	.....
Lancaster.....	270,309.11	.....	.....	270,309.11	2,703.09	2,300.65	402.44
Lebanon.....	712,909.90	1,875.11	20,896.64	690,138.15	6,901.38	5,613.55	1,306.58
Lebanon and Trust.....	1,706,158.33	9,015.39	374.85	1,696,768.09	16,967.68	16,439.59	444.34

Littleton.....	688,742.54	.....	.....	688,742.54	6,887.43	6,327.33	560.10
Manchester.....	4,587,923.16	.....	.....	4,587,923.16	45,879.23	43,296.52	2,582.71
Mason Village.....	82,745.61	.....	.....	82,745.61	827.46	788.41	39.05
Mechanics, Manchester.....	225,350.02	.....	.....	225,350.02	2,253.50	2,119.44	134.06
Mechanics, Nashua.....	401,424.30	.....	.....	401,424.30	4,014.24	3,523.81	490.43
Meredith Village.....	373,351.11	.....	.....	370,025.63	3,700.26	3,621.48	78.78
Merrimack County.....	855,318.73	.....	.....	844,618.73	8,446.19	8,253.30	195.89
Merrimack River.....	2,088,095.99	.....	.....	2,088,095.99	20,880.96	19,899.16	981.80
Milford Five-Cent.....	847,309.14	.....	.....	842,609.14	8,426.09	8,108.01	318.08
Monadnock.....	436,498.44	.....	.....	431,629.55	4,316.29	3,978.71	342.65
Nashua.....	2,560,321.63	.....	.....	2,560,321.63	25,603.22	24,275.56	1,327.66
New Hampshire.....	2,626,713.94	.....	.....	2,582,713.94	25,827.14	24,764.77	1,059.37
New Hampshire Banking Co.....	745,104.55	.....	.....	741,607.32	7,416.07	6,872.90	543.17
New Ipswich.....	72,812.00	.....	.....	61,725.00	617.25	610.25	7.00
Newmarket.....	169,641.38	.....	.....	127,610.49	1,276.10	1,229.65	46.45
Newport.....	423,225.65	.....	.....	422,190.65	4,221.91	4,179.24	42.67
Norway Plains.....	584,627.53	.....	.....	500,355.55	5,003.56	4,420.99	582.57
Ossipee Valley.....	128,878.04	.....	.....	128,878.04	1,288.78	1,138.05	150.73
People's.....	735,287.86	.....	.....	735,287.86	7,352.88	7,133.24	219.64
Peterborough.....	611,960.66	.....	.....	606,460.13	6,046.24	5,926.11	135.72
Piscataqua.....	404,623.65	.....	.....	404,623.65	4,046.24	2,889.09	1,157.15
Pittsfield.....	9,790.16	.....	.....	246,981.99	2,469.82	2,424.83	44.99
Portsmouth.....	13,302.40	.....	.....	3,132,769.58	31,327.69	22,001.38	9,285.32
Portsmouth Trust and Guaranty.....	.....	.....	.....	430,789.42	4,307.89	3,786.27	521.62
Rochester.....	9,105.00	.....	.....	322,059.99	3,220.60	3,211.04	75.61
Rollinsford.....	.....	.....	.....	449,537.25	4,495.37	2,307.95	2,187.42
Sandwich.....	475.00	.....	.....	72,100.59	721.01	699.31	21.70
Security.....	.....	.....	.....	129,729.04	1,297.29	1,160.52	136.77
Somersworth.....	63,000.00	.....	.....	764,962.19	7,649.62	4,961.99	2,687.63
Squamsco.....	2,142.93	.....	.....	22,255.04	222.55	219.44	3.11
Strafford County.....	13,000.00	.....	.....	3,014,352.38	30,143.52	30,086.36	57.16
Sullivan Savings Institution.....	1,600.00	.....	.....	1,110,343.92	11,103.44	9,705.82	1,386.72
Union Five-Cent.....	.....	.....	.....	338,437.96	3,384.38	3,349.23	35.15
Walpole.....	.....	.....	.....	146,550.81	1,465.51	1,194.67	270.84
Wilton.....	8,560.00	.....	.....	60,135.00	601.35	601.35	.....
Wolfeborough.....	5,268.35	.....	.....	88,077.58	880.78	880.46	.....
Totals.....	\$47,842,812.07	\$431,684.25	\$436,404.97	\$46,974,722.85	\$469,747.21	\$428,983.08	\$40,764.13

SAVINGS BANKS DOING BUSINESS IN THE SAME OFFICE WITH
NATIONAL OR STATE BANKS.

Amoskeag Savings Bank, with Amoskeag National Bank.
Cocheco Savings Bank, with Cocheco National Bank.
Connecticut River Savings Bank, with Connecticut River National Bank.
Dartmouth Savings Bank, with Dartmouth National Bank.
Dover Five-Cent Savings Bank, with Dover National Bank.
Farmington Savings Bank, with Farmington National Bank.
Franklin Savings Bank, with Franklin National Bank.
Guaranty Savings Bank, with Merchants' National Bank.
Guaranty Savings Bank, with Citizens' National Bank, Keene.
Iona Savings Bank, with Citizens' National Bank.
Lebanon Savings Bank, with Lebanon National Bank.
Littleton Savings Bank, with Littleton National Bank.
Loan and Trust Savings Bank, with State Capital National Bank.
Manchester Savings Bank, with Manchester National Bank.
Mechanics' Savings Bank, with Second National Bank, Manchester.
Mechanics' Savings Bank, with Second National Bank, Nashua.
Merrimack County Savings Bank, with Mechanics' National Bank.
Merrimack River Savings Bank, with First National Bank, Manchester.
Monadnock Savings Bank, with Monadnock National Bank.
Newmarket Savings Bank, with Newmarket National Bank.
Newport Savings Bank, with Newport National Bank.
Norway Plains Savings Bank, with Rochester National Bank.
People's Savings Bank, with Amoskeag National Bank.
Piscataqua Savings Bank, with First National Bank, Portsmouth.
Rollinsford Savings Bank, with Salmon Falls State Bank.
Security Savings Bank, with Winchester National Bank.
Sullivan Savings Institution, with Claremont National Bank.

APPENDIX.

APPENDIX.

GENERAL LAWS

RELATING TO

STATE AND SAVINGS BANKS.

CHAPTER 55.

ANNUAL INVOICE OF TAXABLE PROPERTY.

SECTION 11. The selectmen, or either of them, may make personal application to any inhabitant of the town, to any person having the care of personal property taxable therein, and to the officers of any corporation, for an account of the polls and ratable estate for which they are liable to be taxed.

Personal application by selectmen.

SECT. 13. The cashier, treasurer, agent, or other principal officer of every bank, savings institution, insurance company, or other corporation, on application in person or by writing by any selectmen, shall furnish, at the principal place of business of such corporation, an account in writing, on oath if required, of all the ratable estate of such corporation, and a like account of all shares and deposits therein owned by any person, resident, or corporation established out of the State, within four days after such application.

Corporation to give account of property and non-resident shares.

SECT. 14. If any officer of such corporation shall not, upon application, give such account of its ratable estate, the corporation may be doomed in the same manner as individuals; and if any taxable property shall be willfully omitted in such ac-

Doomage in case of neglect.

count, the corporation may be assessed fourfold therefor, like individuals.

Account of
residents'
shares.

SECT. 15. The cashier or other principal officer of every bank or other corporation, upon such application, shall furnish a like account of all shares or deposits therein owned by any inhabitant of the town of which the person applying is selectman, and the value thereof, whether mortgaged or pledged, or not, within four days after such application is made.

Penalty for
neglect.

SECT. 16. Any such officer or agent, who willfully neglects or refuses to furnish as aforesaid any such account as is required in this chapter, shall forfeit a sum not more than four hundred dollars, for the use of such town.

Penalty for
fraud.

SECT. 17. Whoever transfers any stock, in any bank, insurance company, or other corporation, for the purpose of avoiding taxation, or to prevent its being taxed to the real owner thereof in the town in which he resides, and whoever, for either of the purposes aforesaid, deposits money in any savings bank or institution for savings in the name of a fictitious person, or any false name, or in the name of a person not resident in the city or town in which he is represented to reside, or under any false residence, shall be fined not more than one thousand dollars, to the use of the town in which, or for the use of which, such stock or money ought to be taxed.

CHAPTER 65.

TAXATION OF BANK STOCK AND DEPOSITS IN SAVINGS INSTITUTIONS.

Stocks in
banks, where
and to whom
taxed.

SECTION 1. All shares of the capital stock of the banks located in this State, whether private, state, or national, shall be taxed at their par value to the owners thereof, in the town in which they reside, if in this State. All shares standing in the names of persons residing out of the State shall be taxed to the person in whose name such shares may stand in the town where the bank is located; and such taxation shall create a lien in favor of the town where such bank is located, upon such shares for the payment of said taxes.

SECT. 2. It shall be the duty of the cashier of every such bank, on or before the fifth day of April in each year, to make out and send a notice in writing to the selectmen or assessors of the several towns or cities in this State in which persons or parties may reside who own shares in their respective banks, in which notice shall be stated the name or names of the person or persons, party or parties, who own shares in their respective banks on the first day of April in each year, the number of shares owned by each, and the par value of each share, and to deposit said notice in the post-office in the town in which any such cashier may reside, directed to the selectmen or assessors aforesaid.

Duty of cash-
iers to make
returns, etc.,
of stock
owned in
the State.

SECT. 3. Such cashier, on or before the fifth day of April in each year, shall furnish to the selectmen or assessors of the town or city where said bank is located a like list of the stockholders of said bank not resident in the State, the number of their shares, and the par value of the same.

Duty of cash-
ier to make
return of
non-resident
stock.

SECT. 4. The cashier of any bank in this State, who shall neglect or refuse to comply with the provisions of the preceding sections, shall forfeit the sum of one hundred dollars for each offence, to be recovered by indictment, for the use of the town in which persons or parties may reside owning shares as aforesaid, and for the use of the town in which the bank may be located, when the persons or parties owning shares therein are not residing within this State.

Penalty on
cashiers for
neglect of
duty.

SECT. 5. Such bank shall have a lien upon the shares and the dividends thereon, of any stockholder residing out of the State, for the payment of said tax, with interest thereon.

Bank to have
lien for taxes
paid.

SECT. 6. All real estate owned by savings banks in this State shall be taxed in the town or place where situate, in the same manner and at the same rate as real estate owned by other parties.

Real estate of
savings
banks to be
taxed where
situate.

SECT. 7. The treasurers of savings banks shall annually, on or before the first day of May, transmit to the state treasurer a statement under oath of the amount invested in real estate within this State, and of the amount of all deposits and accumulations in their respective savings banks, on the first day of April next preceding, with the names of the towns and the

Treasurers of
savings
banks to
transmit
statement of
deposits to
state treas-
urer.

aggregate amount of such deposits and accumulations made by persons residing in such towns, and the whole amount of deposits and accumulations owned by persons not resident in the State, or whose place of residence is unknown.

Savings
banks to pay
tax of one per
cent on de-
posits.

SECT. 8. Every savings bank shall pay annually, on or before the fifteenth day of June, to the state treasurer, a tax of one per cent upon the whole amount of deposits and accumulations so returned, which is not so invested in real estate, and no other tax shall be assessed on said deposits and accumulations, or against its depositors on account thereof; and if any savings bank shall neglect to pay said tax at the time specified, said state treasurer shall add thereto interest, after such default, at the rate of ten per cent per annum, and shall issue his extent for the sum so unpaid and said interest thereon till the time of payment, and all property of the corporation, on the first day of April preceding, shall be holden for its payment.

Interest add-
ed after
default.

Tax in part
distributed
among towns
where depos-
itors reside.

SECT. 9. The state treasurer, on or before the first day of October annually, shall pay to each town in which any of said depositors resided on the first day of April next preceding, such part of said tax as would be in proportion to the amount of said deposits and accumulations held by residents of said town on said day.

CHAPTER 94.

LITERARY FUND.

Literary fund
established.

SECTION 1. Every banking corporation shall pay to the treasurer, on or before the second Wednesday of June annually, one half of one per cent on the amount of the actual capital stock of the bank at that time. The sums so paid shall constitute a fund to be called the literary fund, and shall be kept and accounted for by the treasurer.

Board of com-
missioners.

SECT. 2. The governor, secretary, and treasurer, for the time being, shall constitute a board of commissioners to manage said fund.

SECT. 3. If any dispute shall arise respecting the amount of the capital stock of any bank, the same, for the purposes of this chapter, shall be determined by the commissioners. Amount of capital determined.

SECT. 4. All sums of money hereafter received from the tax on deposits in savings banks by non-resident depositors, or depositors whose residence is unknown, shall be added to and constitute a part of the literary fund, and shall be kept, accounted for, managed, assigned, and distributed according to the provisions of law applicable to the literary fund. Tax on deposits in savings banks added to fund.

CHAPTER 147.

GENERAL POWERS OF CORPORATIONS.

SECTION 1. The provisions of this title do not apply to public municipal corporations, such as towns, cities, and the like. Not to public corporations.

SECT. 2. The rights, powers, and duties set forth in this chapter are incident to all corporations legally constituted not excepted in the preceding section, subject to any limitations or restrictions imposed by the charters or laws authorizing the organization of particular corporations, whether voluntary or otherwise. Incidents of corporations.

SECT. 3. Every such corporation may admit associates and members, and for just cause remove them; may elect all necessary officers, define their duties, and fix their compensation, but at least one of the directors of every corporation existing by virtue of the laws of this State, or hereafter created thereby, and having stockholders resident in this State, shall be an actual inhabitant of this State; may have a common seal, and change the same at pleasure; may sue and be sued, appear, prosecute, and defend in the corporate name to final judgment and execution, and appoint agents and attorneys for that purpose; and have perpetual succession unless incorporated for a limited term. General powers.

By-laws.

SECT. 4. Any such corporation may adopt by-laws not repugnant to the laws of this State:

I. To provide for the election and removal of members.

II. To prescribe the times and places of their meetings, and the manner of calling and conducting them.

III. To regulate the number of officers, their powers and duties, the mode of choosing them, and their tenure of office; and any others necessary and suitable to promote the objects of the corporation; and alter and amend the same.

To make contracts.

SECT. 5. Any such corporation may make contracts necessary and proper for the transaction of their authorized business, and no other; they shall not become sureties nor guarantors, nor be capable of binding themselves as such.

To hold real and personal estate.

SECT. 6. Such corporations may purchase, hold, and convey real and personal estate necessary and proper for the due transaction of their authorized business, not exceeding the amount authorized by their charter or by statute, and no other.

To take mortgages.

SECT. 7. But they may take security for the payment of debts due to the corporation, by mortgage, pledge, or attachment of any other property, real or personal, and perfect a title thereto by proper legal proceeding; but the same shall be sold or disposed of within two years after such title is perfected.

Clerk, place of office.

SECT. 8. Every corporation shall have a clerk, who shall be chosen annually by the stockholders, or in such other manner as the charter or by-laws may prescribe, and shall be and continue an inhabitant of this State and keep his office therein; he shall hold his office for one year, and until his successor is chosen and qualified, and shall be sworn to the faithful discharge of his duties; and in case a vacancy shall occur, a clerk shall be forthwith appointed for the time by the president or a majority of the directors, who shall hold his office till a clerk is duly appointed.

Clerk's duties.

SECT. 9. The clerk shall record all votes and proceedings of the corporation and those of the directors, so far as required by the charter or by-laws; shall keep a record of all instruments and papers required to be recorded in his office; and shall perform all other duties incumbent on him by law or usage or by the by-laws.

SECT. 10. All records and files proper to be made and kept in the office of the clerk of any corporation shall be open to the inspection of every member and stockholder, and of every creditor of the corporation whose demand is due and unpaid, and of his attorney. Records open to inspection.

SECT. 11. All accounts and minutes of business of the corporation kept by its treasurer or by any officer or agent thereof, all records of certificates and transfers of shares, all original certificates and transfers on file, and original papers and evidences of debts due to such corporation, shall be subject to the inspection of every member and stockholder, and of every creditor thereof whose demand is due and unpaid, so far as they have any relation to the claim of such creditor. Accounts, transfers of shares, etc., open to inspection.

SECT. 12. The clerk, treasurer, or other officer or agent of any corporation, having the keeping of any such record, account, or paper, when required by any member or stockholder, or by any such creditor, on payment or tender of the like fees as are by law allowed to clerks of court for such service, shall furnish a certified copy of any vote, record, or account, and of any original paper which such party is entitled to inspect. Copies to be furnished.

SECT. 13. If any clerk, treasurer, officer, or agent of any corporation, after demand of such copy, and payment or tender of the fees therefor, shall neglect or refuse for seven days to furnish such copy, he shall forfeit for every such offence a sum not exceeding one thousand dollars, to any member, stockholder, or creditor who shall have demanded such copy. Penalty for refusal.

SECT. 14. Any corporation, at any legal meeting, may alter the time of holding its annual meeting. Annual meeting changed.

SECT. 15. If any corporation shall fail to hold its annual meeting, or if, from any cause, at any time, a meeting thereof cannot otherwise be called, the owners of one twentieth part of the stock or property thereof, or, if the same is not divided into shares, one twentieth part in number of the members thereof, may apply in writing to any justice of the peace, stating the occasion and purpose of such meeting, to call a meeting of the members of such corporation. Loss of meetings, how supplied.

SECT. 16. Such justice shall thereupon issue his warrant to one of the applicants, requiring him to warn such meeting, at Meetings, how warned.

a suitable time and place, for the purpose stated in the application, by publishing a copy of the application and warrant ; and all business transacted at such meeting in pursuance of such warrant shall be valid.

Time to close
concerns.

SECT. 17. Any corporation whose power may expire, by express limitation or otherwise, on any day, may continue to be a body corporate for three years thereafter, with all the powers necessary for the purpose of prosecuting and defending suits, and of gradually closing and settling the concerns and dividing the capital stock of such corporation, and for no other purpose.

Charters
repealed,
altered, or
amended.

SECT. 18. The Legislature may at any time alter, amend, or repeal the charter, or modify or annul the powers of any corporation, whenever the public good shall require the same ; but the remedy against such corporation, its members, or officers, for any liability previously incurred, shall not be impaired thereby.

CHAPTER 148.

DIVIDEND-PAYING CORPORATIONS.

Clerk, etc., to
keep record
of shares.

SECT. 10. A record of the names and places of residence of all stockholders, and the number of shares owned by each, shall be made and kept by the treasurer and assistant treasurer of every railroad, the cashier of every bank, and the clerk of every other corporation, in a book in which shall be recorded all transfers of shares.

Transfer of
shares.

SECT. 11. Shares may be transferred by the proprietor by writing by him signed on the back of the certificate, or by a deed under seal, recorded by the treasurer, cashier, or clerk, in a book kept by him for that purpose ; and the purchaser, on producing and delivering to the cashier or treasurer the former certificate and the transfer thereon, or deed thereof, with a certificate thereon that the same are duly recorded in the proper office, and at what time, shall be entitled to a new certificate of the date of such record, if no prior lien then existed thereon.

SECT. 12. In transfers of stock as collateral security, the debt or duty to be secured shall be substantially described in the instrument of transfer ; and the certificate issued to the holder of the stock as collateral security shall express that it is so holden, for whose debt, and to what amount. The pledgeor of stock transferred as collateral security shall be regarded as the general owner, and be entitled to the rights and subject to the liabilities of the stockholder, notwithstanding such transfer.

Transfers as collateral security.

SECT. 13. The free sale of shares in the stock of any corporation, by the owner thereof, shall not be restrained by the by-laws of any corporation ; and all such by-laws heretofore or hereafter made shall be void.

Sale of shares free.

SECT. 14. The cashier of every bank, and the treasurer and clerk of every other corporation, shall keep an account of every certificate of stock issued from his office, and of every transfer of shares, with the names and residences of the parties thereto, and shall keep on file all deeds and transfers of shares delivered to him.

Cashier's, treasurer's, and clerk's account of shares.

SECT. 18. Every stockholder in any corporation, except banks whose charters otherwise provide, may give one vote at any meeting thereof for every share he owns therein, not exceeding one eighth part of the whole number of shares.

Right to vote limited.

SECT. 19. No person claiming to be a stockholder in his own right shall vote as such until he shall make oath, if required by any stockholder at such meeting, before a justice of the peace, that he is the absolute and *bona fide* owner of the shares claimed by him.

Stockholder to make oath.

SECT. 20. Any person holding stock in such corporation as executor, administrator, guardian, or trustee, and any person who has pledged his stock as collateral security, may vote thereon as stockholder, upon producing, if his right is contested, evidence of his title satisfactory to the presiding officer.

Executors, etc., pledgeors.

SECT. 21. Except in railroad corporations, any person not a stockholder, being authorized by a writing under the hand of any stockholder entitled to vote by proxy filed with the clerk or cashier, may vote as proxy in the right of such stockholder ; but no stockholder shall act as proxy for any other

Vote by proxy limited.

stockholder, nor shall any person act as proxy for more than one stockholder, or vote as proxy for shares exceeding one eighth of the whole capital stock.

Proxy for one meeting.
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SECT. 22. No proxy shall confer the right to vote at more than one meeting, which shall be named therein.

No voting until assessments paid.

SECT. 23. No person shall vote on any shares until all assessments which have been ordered, and have become due and payable thereon, have been fully paid.

CHAPTER 166.

BANK COMMISSIONERS.

Provisions of title to apply to all banks, etc.

SECTION 1. The provisions of this title, so far as they properly may, shall apply to state and national banks, savings banks or institutions for savings, private banks, and loan-fund associations, unless otherwise expressly limited in their operation.

[From Pamphlet Laws of 1881, in place of sect. 2, chap. 166, General Laws :

Bank commissioners' appointment.

SECT. 1. Two bank commissioners shall be appointed by the Governor and Council, who shall hold office for two years, and until others are appointed and qualified in their stead, but may be removed at pleasure by the Governor and Council.

SECT. 2. Section two of chapter one hundred and sixty-six of the General Laws, and all acts and parts of acts inconsistent with the provisions of this act, are hereby repealed ; and this act shall take effect upon its passage.]

Qualifications of commissioners.

SECT. 3. No person shall be appointed a bank commissioner who is not a resident of this State, or who is indebted to any bank, or holds any office or stock in any bank.

Duty of commissioners to examine banks.

SECT. 4. Once at least in each year, and as much oftener as the Governor may direct, an examination shall be made into the condition of every bank in the State, and into the management of its affairs, by one of said bank commissioners.

Such commissioner shall inspect all its books, papers, notes, bonds, and other evidences of debt, ascertain the quantity of specie and other money and funds on hand, and make all inquiries necessary to learn its ability to perform all its engagements, and whether it has violated any provision of law.

SECT. 5. Such commissioners shall, as soon as practicable, and in all cases on or before the first day of May, annually, report the result of such examination to the Governor, which report shall be filed in the office of secretary of state. They

To report to Governor.

shall give in their report a detailed statement of all the items of expense of all savings banks, with the names of the treasurers and their clerks, and a statement of the salary of each, and report in detail the kind and amount of stocks and bonds held by each of said savings banks, with the par value thereof, the cost to said banks, and the market value thereof at the date of their examination. They shall also report the amount of the treasurer's bond, with all such information as will tend to give the true standing of such banks.

Report to contain what.

SECT. 6. Any commissioner may examine, under oath by him administered, any officer, agent, or servant of any bank, or any other person, in relation to the affairs and condition thereof.

To examine officers and others under oath.

SECT. 7. The secretary shall annually procure two thousand copies of the report of said bank commissioners to be printed, and shall furnish a copy thereof to the attorney-general and each solicitor, one to the town clerk of each town in the State for the use of the town, one to each public library in the State, and shall, at each session of the Legislature, during the first week of the June session, present to each member one copy of the report for that and the preceding year.

Secretary to procure and distribute printed reports of commissioners.

[From Pamphlet Laws of 1881, in place of sect. 8, chap. 166, General Laws (see Laws 1883):

SECT. 1. That section eight of chapter one hundred and sixty-six of the General Laws be so amended that the commissioners shall be paid for their services by the State instead of the banks, as now provided in said section.

Compensation of commissioners.

SECT. 2. All acts and parts of acts inconsistent with this act are hereby repealed.]

When commissioners to apply for injunction.

SECT. 9. If any bank shall not permit an examination of its affairs by any bank commissioner, or shall not furnish the necessary facilities therefor, or if it is judged by the commissioners to be necessary for the public safety that it should not continue to transact business, they shall represent the facts by petition to some justice of the supreme court.

Character of injunction.

SECT. 10. Such justice shall issue an injunction prohibiting, as far as may be thought necessary, the transaction of any business by said bank, and the said commissioners shall cause the same to be duly served.

Injunction may be modified, dissolved, etc.

SECT. 11. Such injunction may be modified by said justice; and the supreme court, upon petition and notice to the bank commissioners, may dissolve, modify, continue, or extend the same as equity may require.

Commissioners may institute proceedings to vacate charter.

SECT. 12. When the bank commissioners shall deem it necessary for the public safety, they may lay the facts in writing before the attorney-general, and require him to file an information against any incorporated bank, for the purpose of vacating its charter, at the next trial term of the supreme court for the county.

May procure the appointment of assignee, when.

SECT. 13. In either of said cases they may apply to the supreme court or a justice thereof, to appoint an assignee of the property and effects of such bank; and said court or justice may make such appointment, subject to such rules and orders as may be prescribed thereby.

Power and duty of assignee.

SECT. 14. Such assignee shall take possession of all the estate, property, rights, and credits of the bank, and demand, receive, sue for, and recover the same wherever found, and may require such bank, its officers, owners, or others, having any such property or control thereof, to execute to him a transfer or conveyance thereof, and may sell and convey any such property, and do any act necessary to convert such assets into money.

Courts may make orders, etc.

SECT. 15. Said court, or any justice thereof in vacation, may make any orders necessary to carry such assignment into effect, and may affix such penalties for disobedience thereto as may be thought necessary.

SECT. 16. Upon application, the court may issue an injunction restraining all proceedings at law by any creditor against such bank, and may order notice to be published, as they may direct, requiring all creditors to present and prove their claims against such bank to such persons, within such time as may be directed, and in default to be precluded from all benefit of the assets of such bank.

Creditors of bank may be restrained.

SECT. 17. The proceeds of such property shall be holden:

Assets of bank, how distributed.

I. To pay the expenses of the assignment.

II. To pay all bills issued by the bank *pro rata*.

III. For the payment in equal proportion of all debts, claims, and obligations owing by such bank.

IV. The remainder to be divided among the stockholders according to their interests.

SECT. 18. Every such assignee shall receive such reasonable compensation for his expenses and services, in the execution of said trust, as said court may order.

Compensation of assignee.

SECT. 19. Every assignee, before acting as such, shall file in court a bond to the county, in such sum and with such sureties as the court or justice may approve, faithfully to execute the duties of his appointment, to comply with the orders of the court, and to render an account of his proceedings therein to the court when required.

Assignee to give bond; condition.

SECT. 20. Any person aggrieved by any default or misconduct of such assignee in his trust, may, by leave of the court, institute a suit on said bond, and recover the damages sustained thereby.

Suits on bond.

SECT. 21. If any officer, agent, or clerk of any bank, or an other person, shall make any false entries in the books thereof, or shall exhibit false papers, or make false statements under oath, with intent to deceive any bank commissioner, he shall be fined not exceeding one thousand dollars, or imprisoned not exceeding five years.

Penalty for false entries in books of bank, etc.

SECT. 22. If any bank, without legal authority, shall fail to pay, on request, its bills in specie, its charter shall be forfeited, and the Governor shall direct an immediate examination of its affairs by two or more of the bank commissioners, and such proceedings shall be had as the commissioners judge necessary.

Refusal to pay specie, forfeiture of charter, etc.

CHAPTER 169.

BANK CASHIERS AND PRIVATE BANKS.

Cashiers to make returns for purposes of taxation.

SECTION 1. The cashier of every bank shall annually make all the returns and perform all the duties by law required of them respectively, in relation to the taxation of the stock of such bank.

To make quarterly statements of condition of bank.

SECT. 2. The cashier of every state bank shall, on the first Monday of March, June, September, and December, in each year, make a statement of its condition on said day, specifying in separate columns the capital stock actually paid in; debts due the bank secured by pledge on its stock; value of real estate belonging to the bank; amount of debts due the bank; amount of debts due from directors, either as principals or sureties, specifying whether on interest or otherwise; amount of specie in the vault; amount of bills of other banks on hand; amount of deposits in the bank; amount of deposits in other banks for the redemption of its bills; and the amount of the bills of the bank then in circulation.

Statements to be verified by oath and returned to secretary.

SECT. 3. Such statement shall be signed by the cashier, who shall make oath before some justice that the same is, in his belief and to the best of his knowledge, a just and true account of the situation of such bank at the time to which it refers, a certificate of which oath shall be made thereon; and such statement shall be returned to the secretary of state, who shall give a receipt therefor within ten days after said first Monday of March, June, September, and December.

Penalty for neglect to return statements.

SECT. 4. If any such bank neglects to make any such return as required in the preceding section, it shall for every offence be fined not exceeding one thousand dollars; and the certificate of the secretary shall be competent evidence of such neglect.

Secretary to publish abstracts.

SECT. 5. The secretary shall cause to be published abstracts of the quarterly returns required to be made by the preceding sections, in the "Independent Statesman" and "The People."

Associations or partnerships engaged in banking, banks.

SECT. 6. Every association or partnership formed for the purpose of loaning money or dealing in money, receiving deposits, buying and selling exchange, or transacting such other

business as is usually transacted by banks, shall be a bank for the general purposes of this title and for taxation; and the clerk or cashier of every such bank shall make the same returns to towns where its stockholders reside as the cashiers of other banks are by law required to make.

SECT. 7. Every person owning any portion of the funds employed in any private bank shall be deemed a stockholder therein; and the average amount of the capital of such private bank during the preceding year shall be the capital of such bank subject to taxation as stock.

Stockholders in private banks, who are; what constitutes capital for taxation.

SECT. 8. The stockholders of any private bank shall be liable as partners for all the debts and obligations of such bank.

Stockholders liable as partners for debts of bank.

CHAPTER 170.

SAVINGS BANKS.

SECTION 1. No person shall be eligible for election to any office in any savings-bank corporation who is at the time indebted to said bank for any loan, either as principal or surety; and no savings bank shall hereafter make any loans to any of its officers, or receive the name of any of its officers as surety for any loan, except with the unanimous consent of the trustees, in writing, filed with the treasurer: but any loan to a trustee made agreeably to this chapter shall not be held to render such trustee ineligible to a re-election as trustee.

Who eligible to office in savings banks and loans to officers regulated.

SECT. 2. The trustees of the savings banks in the State shall make a thorough examination of the affairs of their respective banks once in every six months, and banks having an average deposit exceeding the full sum of five hundred thousand dollars every January, April, July, and October; and a report of such examination, signed by a committee of the trustees, shall be returned to the bank commissioners, and a copy of said report shall be published by the bank in a newspaper in the place where such bank is established; or, if there be no newspaper in such place, then in a newspaper published at the nearest place thereto.

Trustees to examine bank, and report to bank commissioners; report to be published.

Blanks for reports supplied by commissioners.

Duties of trustees in certain cases, by whom performed; compensation.

Compensation; when and to what officers allowed.

Salaries of treasurers and clerks to be established annually; limitations.

Bond of treasurers prescribed.

Bond of treasurers limited.

SECT. 3. Proper blanks shall be furnished to the banks by the commissioners for these examinations.

SECT. 4. The duties required to be performed by the trustees of savings banks under the preceding sections may be performed by a committee appointed from their own board by the trustees for that purpose, and such committee, and any other committee so appointed, together with such clerks as they may find it necessary to employ, shall be entitled to receive proper compensation for services actually performed by them.

SECT. 5. No compensation shall directly or indirectly be allowed to any of the officers of the savings banks, except the treasurers and their clerks, except as above provided.

SECT. 6. The trustees of all the savings banks in the State shall annually establish the salary of the treasurer and his necessary clerks, which, together with all expenses, shall not exceed four thousand dollars, except when the average amount of deposits exceeds the full sum of one million dollars; then the salary of such treasurer, necessary clerks, and expenses, shall not exceed one eighth of one per cent upon the excess of one million dollars in addition to the sum herein before fixed, up to the sum of one million dollars; which compensation so established shall be in full for all the services of the treasurer and his clerks, and other expenses in all cases.

SECT. 7. The treasurers of all savings banks shall give a bond with sufficient sureties for the faithful performance of the duties of their office, in the penal sum of twenty-five thousand dollars, and when the deposits in any savings bank shall exceed the sum of one hundred thousand dollars, the penal sum of such bond shall be increased five thousand dollars for each sum of one hundred thousand dollars or fractional part thereof.

[From Pamphlet Laws of 1885 :

SECT. 1. Section 7 of chapter 170 of the General Laws is hereby amended by adding at the close the words: "*Provided, however, that no bond shall ever be required in a larger penal sum than one hundred thousand dollars.*"

SECT. 2. This act shall take effect on its passage.

Approved July 23, 1885.]

SECT. 8. The bonds of the treasurers of all savings banks shall forthwith be recorded at length on the books of said banks, and on or before the first day of January thereafter the treasurers thereof shall file with the secretary of state an attested copy thereof.

Bonds to be recorded and copies filed with secretary of state.

SECT. 9. It shall be the duty of the bank commissioners to examine annually the bonds of the treasurers of all savings banks, to inquire into and certify to the sufficiency thereof, and whenever they shall deem any such bond insufficient they shall order a new bond to be filed within a reasonable time, to be by them limited.

Bonds to be examined by bank commissioners.

SECT. 10. Where a savings bank is operated and kept in the same office with a national bank, the treasurer of said savings bank shall procure, upon the semi-annual or quarterly report, a certificate, made under oath by a committee of the directors of the national bank, that they, upon the same day, and at the same time of the examination of the savings bank, required by the preceding sections, did make an examination of the affairs and securities of the national bank, and found them to be correct.

When bank is kept with national bank the treasurer to procure certificate of directors that they examined national bank at the same time.

SECT. 11. In case the treasurer of any savings bank shall neglect, for the space of thirty days, to furnish the certificate required by the preceding section, it shall be the duty of the bank commissioners, by a notice in writing duly served, to require such treasurer to appear before them, at a time and place to be specified in said notice, and show cause why such neglect has happened. If no sufficient cause be shown, or if such cause being shown, such treasurer shall fail to furnish such certificate within a time to be fixed by the commissioners, it shall be their duty to proceed immediately and remove the savings bank from the office of the national bank, and, if such treasurer is also cashier of such national bank, to remove him from his office as treasurer; all which said commissioners are hereby fully authorized and empowered to do.

Neglect of treasurer, proceedings in case of.

SECT. 12. Any officer of any savings bank in this State who shall embezzle, abstract, or willfully misapply any of the moneys, funds, or credits of the bank, or shall make any false entry in any book, report, or statement of the bank,

Penalty for embezzlement or false entry by officer of savings bank.

with intent in either case to injure or defraud the bank, or any company, body politic or corporate, or any individual person, or to deceive any officer of the bank, or any committee or examiner appointed to examine the affairs of any such bank, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by fine not exceeding twenty thousand dollars, or by imprisonment not exceeding ten years.

Guaranty fund to be created.

SECT. 13. Every savings bank shall annually pass to the credit of a guaranty fund a sum equal to ten per cent of its net earnings for the year, until such guaranty fund shall amount to a sum equal to five per cent of its actual deposits.

Rate of interest and dividend fixed.

SECT. 14. Savings banks shall not pay their depositors interest at a greater rate than five per cent annually, but may divide any surplus beyond their guaranty fund that may have accrued, every two years, and shall do so every five years; and whenever any savings bank shall have a guaranty fund equal to five per cent of its actual deposits, it may divide its net gains annually.

U. S. taxes to be charged proportionately to depositors.

SECT. 15. All taxes paid by the savings banks of the State to the United States shall be proportionately charged by said banks to those depositors upon whose deposits said taxes are paid.

Funds and property to be kept separate from assets of other banks or individuals.

SECT. 16. Savings banks in this State may deposit funds in national banks in good credit and unimpaired capital, the same as any depositor; but all coin, bills, notes, bonds, securities, and evidences of debt comprising the assets of said savings bank, shall be kept separate and apart from the assets or property of any other bank, banker, corporation, partnership, individual, or firm, and savings-bank officers failing to comply with the provisions of this section shall be liable to be removed by the bank commissioners, as provided in section eleven.

Stocks held as collateral to be reported for taxation, how.

SECT. 17. All stocks subject to taxation in this State, standing in the name of any savings bank, but held as collateral security, shall be reported with its owner's name by the treasurer, under oath, to the assessors of the town where its owner resides, if within this State, otherwise to the town where the corporation is located.

[From Pamphlet Laws of 1881, in place of sections 18 and 19, chapter 170, General Laws :

SECT. 1. That sections eighteen and nineteen of the said chapter be and hereby are repealed. Repealing clause.

SECT. 2. No savings bank shall loan to any person, corporation, firm, and its individual members, an amount in excess of ten per cent of the deposits and accumulations of such savings bank ; nor purchase or hold, both by way of investment and as security for loans, the stock and bonds of any corporation to an amount in excess of such ten per cent. Individual loans limited.

SECT. 3. This act shall take effect upon its passage. Takes effect when, and

SECT. 4. All acts and parts of acts inconsistent herewith are repealed.] repealing clause.

SECT. 20. Whenever the assets of any savings bank shall be reduced in value below the total amount of deposits, any judge of the supreme court, in connection with the bank commissioners, shall, on the written petition of a majority of the trustees, reduce the deposit account of each depositor so as to divide such loss equitably among the depositors ; *provided, however*, if the bank shall afterwards realize from the assets a greater amount than that fixed upon by the judge and bank commissioners, the amount so realized shall be equitably divided and credited to the accounts of the depositors which had been thus reduced, but to the extent only of such reduction. When assets are less than deposits, a judge and the bank commissioners, on petition of trustees, to divide loss among depositors.

SECT. 21. Whenever it appears to the bank commissioners that the assets of any savings bank are reduced below ninety per cent of the deposits, it shall be the duty of said commissioners, in connection with a judge of the supreme court, of their own motion, to proceed as provided in the preceding section. When assets fall below ninety per cent of deposits, proceedings to be taken without petition.

SECT. 22. Any savings bank or other institution for savings may, at their discretion, pay to any minor or married woman such sum as has been deposited to his or her credit, as if such minor were of age and such married woman unmarried ; and the check, receipt, or acquittance of such minor or married woman shall be a sufficient discharge for the same. Savings banks may pay deposits to minors, or married women.

[From Pamphlet Laws of 1879.]

CHAPTER 5.

AN ACT IN RELATION TO SAVINGS BANKS.

Closing up of
insolvent sav-
ings banks
regulated.

SECTION 1. Whenever any savings bank which had heretofore or may hereafter have its deposits reduced, under the provisions of sections twenty and twenty-one of chapter one hundred and seventy of the General Laws, and which has kept or shall keep all moneys deposited after such reduction, together with the interest or dividends accruing therefrom, separate and distinct from those previously deposited, and has kept or shall keep the securities in which the same are invested separate and distinct from those pertaining to the reduced deposits, and whenever in such cases there shall be occasion for the supreme court or any justice thereof, on application of the bank commissioners, to enjoin such bank from doing business, and to appoint an assignee or assignees, under existing laws, such injunction, the appointment of an assignee or assignees, and all other proceedings therein, may, in the discretion of the court or such justice, be made applicable only to the deposits so reduced, the interest or dividends thereon, the securities, incomes, and assets thereof, and all else pertaining thereto, or applicable only to the deposits made after such reduction, the interest or dividends thereon, the securities, income, and assets thereof, and all other matters pertaining thereto, or to both of such classes of deposits, the securities, income, and assets thereof, and all other matters pertaining thereto; *provided, however*, that all applications of the bank commissioners to the court for the appointment of assignees to close up either the old or new account shall be published in one or more newspapers printed in the county where the bank is situated, for the space of fifteen days previous to the hearing of such application by the court.

Takes effect,
when.

SECT. 2. This act shall take effect on its passage.

[Approved June 28, 1879.]

[From Pamphlet Laws of 1881.]

CHAPTER 99.

ACT PROHIBITING TREASURERS OF SAVINGS BANKS FROM
ACTING AS PRIVATE BANKERS.

SECTION 1. No treasurer or person acting as treasurer of any savings bank shall carry on or be engaged in the business of private banking, or suffer the same to be carried on in the office of such bank. Treasurers of savings banks not to carry on private banking.

SECT. 2. Any person violating the provisions of this act shall, on conviction, be punished by a fine of one thousand dollars, or by imprisonment not more than one year, or by both, in the discretion of the court. Penalty for violation.

[Approved August 19, 1881.]

CHAPTER 103.

AN ACT FOR THE BETTER PROTECTION OF DEPOSITORS IN
SAVINGS BANKS.

SECTION 1. Any bank commissioner who shall, in the annual report of the bank commissioners, make a statement which purports to be the condition of a bank without having fully and carefully examined said bank, or who shall make a false statement of the condition of any bank with intent to deceive, shall be subject to a fine not exceeding one thousand dollars, or imprisonment not exceeding five years, for each offence. Bank commissioners liable to fine for making false statement of condition of bank.

SECT. 2. Treasurers of savings banks shall keep their books in such manner that the amount due each depositor may be readily ascertained. The books of every savings bank shall contain the names and dates upon the notes and acceptances owned by them, and the numbers upon their bonds and upon their certificates of stock, so that the identity of such assets, and the fact of ownership, and the date of purchase can be readily ascertained. Books to be kept so as to show amount due each depositor and to identify assets.

Note of sav-
ings bank not
to be given,
except.

SECT. 3. No savings bank shall hire money, or give the note of such bank, except by vote of the trustees; and all notes given by any savings bank shall be signed by the treasurer, and shall be countersigned by the president and two trustees.

Trustees to
examine and
publish condi-
tion of bank.

SECT. 4. The trustees of savings banks shall make a thorough examination of the affairs of their respective banks once in every six months, and a report of such examinations, signed by a committee of the trustees, shall be returned to the bank commissioners; and a copy of said report shall be published by the bank in a newspaper in the place where such bank is situated, or, if there be no newspaper in such place, then in a newspaper published at the nearest place thereto.

Annual re-
turn to state
treasurer, etc.

SECT. 5. The treasurers of savings banks shall, in making the annual returns required by chapter sixty-five, section seven, of General Laws, make said returns in conformity with blanks furnished by the state treasurer; and, in taxing the deposits in savings banks, the amount of all real estate owned by said banks, as shown by their books, shall be deducted.

Presidents
and trustees
may be paid.

SECT. 6. Savings banks may pay their presidents and trustees such reasonable compensation for services rendered as they may think just; and they shall receive no commissions or emoluments from any other source.

Repealing
clause; and
takes effect
when.

SECT. 7. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed, and this act shall take effect upon its passage.

[Approved August 19, 1881.]

[From Pamphlet Laws of 1883.]

CHAPTER 102.

Charters
made perpet-
ual.

SECTION 1. That the charters of all savings banks in this State incorporated for a term of years are hereby made perpetual.

Takes effect
when.

SECT. 2. This act shall take effect on and after its passage.
[Approved September 14, 1883.]

CHAPTER 36.

SECTION 1. That each bank commissioner shall be paid by the State for his services and expenses five dollars each day spent in examining savings banks and making reports agreeably to law, and ten cents per mile travel each way. Pay of bank commissioners.

SECT. 2. All acts and parts of acts inconsistent with this act are hereby repealed. Repealing clause.

SECT. 3. This act shall take effect on its passage. Takes effect when.
[Approved August 8, 1883.]

CHAPTER 173.

SECTION 1. On and after September 1, 1883, the name of the corporation chartered under chapter 88 of the private acts of the June session, 1868, as the "Savings Bank of the County of Coös," shall be changed to the Lancaster Savings Bank. Name changed.

SECT. 2. Section 1 of said chapter 88 is hereby amended by striking therefrom the words "for the term of twenty years from the passage of this act," so that as amended said section will read: shall be and remain a body politic and corporate by said name, and shall be vested with all the powers and privileges and subject to all the liabilities of corporations of a similar nature. Made perpetual.

SECT. 3. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed. Repealing clause.

[Approved July 11, 1883.]

[From Pamphlet Laws of 1885.]

CHAPTER 6.

AN ACT TO EXPEDITE THE CLOSING UP OF INSOLVENT BANKS,
AND IN AMENDMENT OF CHAPTER 166, GENERAL LAWS.

SECTION 1. At the expiration of one year from the final decree or order of court distributing the assets of an incorporated bank among the stockholders or depositors, as provided Uncalled-for dividends to be paid into state treasury.

by section 17, chapter 166, of the General Laws, the assignee shall make report to the court or some justice of the supreme court of the names, residence, so far as known, and amount of all dividends uncalled for, and the court or justice shall thereupon order the same paid into the state treasury, and a copy of such report to be delivered to the state treasurer. The receipt of the state treasurer to the assignee shall be a full discharge to the assignee for said dividends.

How disposed of.

SECT. 2. It shall be the duty of the state treasurer to keep in a book provided for that purpose a record of all such dividends so paid to him, with the names of the stockholders or depositors to whom the same belong, their residence, so far as known, and the amount of the same; and he shall pay the same, less one per cent for his services, to the stockholders or depositors to whom the same belong, or to their legal representatives when called for, without interest. All dividends uncalled for at the end of five years from the time they are paid into the state treasury shall escheat to the State.

Takes effect when.

SECT. 3. This act shall take effect upon its passage.

[Approved July 10, 1885.]

CHAPTER 39.

AN ACT IN RELATION TO THE DISTRIBUTION OF THE SAVINGS-BANK TAX.

Time of paying bank tax to towns changed.

SECTION 1. The state treasurer is hereby authorized to use the funds received on account of the annual tax upon savings banks for the payment of ordinary State charges, but shall, on or before the first day of January, annually pay to each town in which any said depositors resided on the first day of April next preceding, such part of said tax as would be in proportion to the amount of said deposits and accumulations held by residents of said town on said day.

Repealing clause; takes effect when.

SECT. 2. Section 9, chapter 65, of the General Laws, is hereby repealed, and this act shall take effect upon its passage.

[Approved August 12, 1885.]

CHAPTER 62.

AN ACT IN AMENDMENT OF SECTION 15 OF CHAPTER 166 OF
THE GENERAL LAWS, RELATING TO BANK COMMISSIONERS.

SECTION 1. That section 15 of chapter 166 of the General Laws be and is hereby amended by adding after the word "necessary" in the last line of said section, the following: "And it shall be the duty of the said commissioners to extend their examinations and exact reports from the assignees of insolvent savings banks, whose property and effects they are now or hereafter may be in possession of, by virtue of authority conferred by sections nine and thirteen of this chapter, and the result of said examinations shall be embraced in the annual report of said bank commissioners."

Duty of commissioners in regard to insolvent banks.

SECT. 2. This act shall take effect on its passage.
[Approved August 25, 1885.]

Takes effect when.

CHAPTER 66.

AN ACT RELATING TO THE GUARANTY FUND OF SAVINGS
BANKS.

SECTION 1. Whenever a majority of the trustees of any savings bank shall deem it necessary, they may by vote utilize the guaranty fund of said bank provided for in section 13, chapter 170, of the General Laws, but in no case shall said fund be used for the payment of dividends.

Guaranty fund may be used, except for payment of dividends.

SECT. 2. This act shall take effect on its passage.

Takes effect when.

SECT. 3. All acts or parts of acts inconsistent with this act are hereby repealed.

Repealing clause.

[Approved August 25, 1885.]

CHAPTER 70.

AN ACT TO AMEND SECTION 6 OF CHAPTER 170 OF THE GENERAL LAWS, RELATING TO THE SALARY OF THE TREASURER AND HIS NECESSARY CLERKS OF SAVINGS BANKS.

Limit of salaries and expenses of treasurer and clerks.

SECTION 1. That section 6 of chapter 170 of the General Laws shall be amended by striking out of the sixth line of said section the word "eighth," and inserting instead thereof the word "fifth," so that said section shall read as follows: "The trustees of all the savings banks in the State shall annually establish the salary of the treasurer and his necessary clerks, which, together with all expenses, shall not exceed four thousand dollars, except when the average amount of deposits exceeds the full sum of one million dollars; then the salary of such treasurer, necessary clerks, and expenses, shall not exceed one fifth of one per cent upon the excess of one million dollars in addition to the sum herein before fixed, up to the sum of one million dollars; which compensation so established shall be in full for all the services of the treasurer and his clerks, and other expenses in all cases.

Takes effect when.

SECT. 2. This act shall take effect from and after its passage.

[Approved August 28, 1885.]

CHAPTER 83.

AN ACT RELATING TO THE QUALIFICATION OF OFFICERS OF SAVINGS BANKS.

Officers of savings institutions not to receive fees, etc., on account of loans.

SECTION 1. No officer, trustee, director, or employé of any savings bank, savings institution, or trust company shall receive any fee, present, benefit, or commission, directly or indirectly, from any borrower or applicant for a loan or as an inducement or as a consideration therefor, or from any one negotiating securities at the institution or company of which he is an officer, trustee, director, or employé, nor shall he

receive any fee, benefit, commission, or profit, directly or indirectly, from any loan made or securities bought or sold by said institution or company, except the benefit or profit he may derive in common with other depositors or stockholders, and the compensation allowed by such institution or company for services and expenses. But this section shall not preclude the ownership by bank-officials of stock in organized banks or companies, or the performance of legal or clerical services by them; *provided*, that in no case shall savings-bank officials negotiate loans with themselves acting as officials of other corporations.

SECT. 2. Any trustee, director, officer, or employé of a savings bank, savings institution, or trust company who violates the provisions of this act shall be fined not exceeding ten thousand dollars or imprisoned not more than ten years, or both. Penalty.

SECT. 3. This act shall take effect on its passage.

Takes effect
when.

[Approved August 28, 1885.]

CHAPTER 100.

JOINT RESOLUTION RELIEVING THE ASHUELOT SAVINGS BANK FROM LIABILITY FOR TAXES.

WHEREAS, the Ashuelot Savings Bank, formerly located at Winchester in our county of Cheshire, on the twenty-fourth day of March, 1881, ceased doing business and passed into the hands of an assignee; and on the fifteenth day of November, 1881, a dividend of sixty per cent of their deposits was ordered by the court and was paid to the depositors, which payment, by reason of doubtful paper and suits then pending, both against and in favor of said bank, gave to the depositors all which it was certain that they would ever receive; and because of this condition of the affairs of the bank no state taxes for the years 1882, 1883, 1884, 1885, have been demanded or paid; and Preamble.

Preamble.

WHEREAS, something has been realized from said doubtful paper, and the suits aforesaid having lately resulted favorably to said bank, the assignee now has in his hands about ten per cent additional for distribution among said depositors ; and

Preamble.

WHEREAS, before dividing the same it is desirable on the part of the assignee that all possible questions relating to the payment of taxes be settled,

Relieved
from liability
on account of
taxes.

Resolved, that the said Ashuelot Savings Bank be fully relieved from any and all liability to the State on account of taxes.

[Approved July 10, 1885.]

CHAPTER 106.

JOINT RESOLUTION RELATING TO OFFICE FOR BANK COMMISSIONERS.

Office for
bank commis-
sioners.

That the bank commissioners be provided with an office either in the State House or some other suitable place in the city of Concord.

[Approved July 23, 1885.]

CHAPTER 184.

AN ACT TO INCORPORATE THE NEW HAMPSHIRE TRUST COMPANY.

Corporation
constituted;
powers and
privileges;
name and
location.

SECTION 1. That John C. French, Clinton S. Averill, William H. Berry, James F. Briggs, Hiram D. Upton, Edwin F. Jones, George C. Gilmore, Virgil C. Gilman, John S. Collins, Oscar H. Bradley, Alonzo Elliott, Charles H. Bartlett, Royal H. Porter, Leonard P. Foster, George A. Fernald, Abraham P. Olzendam, Edward M. Slayton, Arthur L. Walker, Walter S. Holt, William P. Chamberlain, and their associates, successors, and assigns, be and they are hereby incorporated and made a body corporate by the name of the New Hampshire Trust Company, to be located at Manchester in this State, with authority to have and execute all the powers and privileges incident to corporations of a similar nature, for

the purpose of prosecuting the business of a safe-deposit and trust company, to receive on deposit or for safe-keeping money and other valuables, to act as trustee or financial agent, to negotiate loans for persons, firms, or corporations, and to deal in investment securities. Said company may have the further rights and powers of a fidelity insurance company, for the purpose of guaranteeing the fidelity of persons holding positions of financial responsibility.

SECT. 2. Said company shall have a capital stock of one hundred thousand dollars (\$100,000), divided into shares of one hundred dollars each, with authority to increase the capital to two hundred thousand dollars (\$200,000), and may acquire and hold real estate for its own use to the value of twenty-five thousand dollars (\$25,000), exclusive of such real estate as may be taken in good faith for debt or held as collateral security.

Capital stock;
limitation as
to real estate.

SECT. 3. The provisions of law now or hereafter in force, governing the taxation of the capital stock of banks, shall apply to this company.

Taxation.

SECT. 4. Said company, at any meeting duly held, may adopt such by-laws and regulations, not repugnant to the laws of this State, as may be convenient and necessary for the proper management of the business for which the company was created.

By-laws.

SECT. 5. The private property of shareholders shall not be liable for the debts of the company.

Personal
liability.

SECT. 6. The affairs of the company shall be under the supervision and control of the bank commissioners, who shall make the same examinations into and the same reports upon its condition, and receive the same pay for their services from the State, as in case of savings banks.

Bank com-
missioners.

SECT. 7. Hiram D. Upton, John C. French, and Alonzo Elliott, or any two of them, may call the first meeting of the members by a notice in some newspaper published in said Manchester, giving fifteen days' previous notice.

First meeting.

SECT. 8. The Legislature may alter, amend, or repeal this act whenever in their opinion the public good requires it.

Subject to
repeal.

SECT. 9. This act shall take effect from and after its passage. [Approved August 13, 1885.]

Takes effect
when.

CHAPTER 201.

AN ACT TO INCORPORATE THE CONCORD (N. H.) GUARANTY SAVINGS BANK.

Corporation
constituted.

SECTION 1. That Edward H. Rollins, William M. Chase, Edson J. Hill, William G. Carter, John H. George, Gustavus Walker, Henry M. French, Frank W. Rollins, Frank E. Abbott, Frank A. Stillings, James Minot, Frank S. Streeter, and their associates, successors, and assigns, are hereby made a body politic and corporate under the name of the Concord (N. H.) Guaranty Savings Bank, to be located at Concord, with all the rights and privileges, and subject to all the duties and liabilities, except so far as otherwise provided in this charter, which by the laws of this State are incident to savings-bank corporations.

Deposits and
investments.

SECT. 2. Said bank may receive deposits of money from any person or persons, on such terms and conditions as may be prescribed by it or its trustees, or be agreed to by the parties making the same, and may invest and manage the moneys deposited in or belonging to it in such securities and stocks and in such ways as may be for the convenience and advantage of the bank ; subject, however, to the provisions of the existing laws of the State in relation to savings banks.

Guaranty
fund.

SECT. 3. For the better protection and security of the general depositors of the bank, it shall provide for and have a permanent guaranty fund of not less than twenty-five thousand dollars, with liberty to increase the same at pleasure to not exceeding two hundred thousand dollars. Said fund shall be kept and maintained as a guaranty to the general deposits for the repayment of said deposits according to the terms and conditions thereof, in case of any insufficiency of the assets of the bank to pay all of its liabilities, and the general deposits shall have the precedence of payment from the assets of the bank before payment from said assets on account of said guaranty fund ; and no business in the way of receiving general deposits shall be transacted by the bank unless the amount of twenty-five thousand dollars shall then have been provided

for said guaranty fund. The special deposits shall at no time be less than ten per cent of the general deposits, nor shall said special deposits be increased by amounts of less than ten thousand dollars at any one time.

SECT. 4. Special deposits may be received by the bank to constitute the guaranty fund before mentioned, which shall not be withdrawn except by the permission of the bank commissioners, nor at any time so as to reduce said fund below the amount required for the same, as herein before provided. The general deposits shall be entitled to such rate of interest from the bank as may be prescribed or agreed to, not, however, in any case to be less than four per cent per annum, and the book given general depositors on making their first deposit shall state therein the rate of interest to be paid, and no change can be made therefrom until after three months' notice of the proposed change has been given by mailing notice of same to each and every depositor, directed to his or her last known residence; and the special deposits for the guaranty fund shall not be entitled to any interest, but instead thereof shall have all the net income and profits of the bank above its expenses, the interest due the general deposits as aforesaid, and all losses of the bank, and said net income and profits may be divided proportionally among said special deposits at such times and in such ways as the bank or its trustees may order; *provided, however*, that such dividends shall be made only when the net resources of the bank, above its expenses, its liabilities for the general deposits, and the guaranty fund aforesaid, shall be sufficient to pay the same.

Special deposits, interest, and dividends.

SECT. 5. The special depositors for the guaranty fund and their assigns shall by virtue thereof become and be members of the corporation, and have and exercise all the rights and powers of the same, each special depositor being entitled to one vote for each one hundred dollars of his said deposit; but no member shall incur or be subject to any individual liability in any case for any debts or liabilities of the corporation; and the management and control of the affairs of the corporation shall be vested in a board of not less than five nor more than ten trustees, to be chosen by the members of the corporation.

Corporators' rights and liabilities; officers.

A majority of said board, at any meeting duly notified, shall constitute a quorum for the transaction of business ; and said board shall have the power to make and establish such rules and regulations as they may think proper for the transacting and governing the business of the corporation.

Limitation as
to real estate.

SECT. 6. Said bank may purchase and hold real estate to the value when purchased of not exceeding twenty-five thousand dollars, and may hold such amounts as may at any time be deemed advisable for the security and satisfaction of any dues to it.

Tax on spe-
cial deposits.

SECT. 7. The tax on the special deposits shall be assessed and paid in the same manner and at the same rate as the law requires on general deposits.

First meeting.

SECT. 8. Any three of the five grantees first named may call the first meeting of the corporation by notice in writing to each grantee, or by one publication in some newspaper printed at Concord, at least one week before the day of meeting.

Subject to
repeal.

SECT. 9. The Legislature may alter, amend, or repeal this act whenever in their opinion the public good shall require.

Takes effect
when.

SECT. 10. This act shall take effect upon its passage.

[Approved August 25, 1885.]

CHAPTER 185.

AN ACT TO EXTEND THE CHARTER OF THE CONCORD GUARANTY SAVINGS BANK, PASSED JUNE SESSION, 1883.

Charter
extended.

SECTION 1. The act to incorporate the Concord Guaranty Savings Bank, approved September 14, 1883, be and hereby is revived and extended.

Takes effect
when.

SECT. 2. This act shall take effect upon its passage.

[Approved August 13, 1885.]

AN ACT TO INCORPORATE THE CONCORD GUARANTY SAVINGS BANK.

Corporation
constituted.

SECTION 1. That Stillman Humphrey, B. Frank Brown, Cyrus R. Robinson, Paul Holden, Edson C. Eastman, Robert

A. Ray, Dr. J. H. Gallinger, E. F. Mann, G. B. Emmons, and Frank L. Abbott, and their associates, successors, and assigns, are hereby made a body politic and corporate under the name of the Concord Guaranty Savings Bank, to be located at Concord, with all the rights and privileges, and subject to all the duties and liabilities, except so far as otherwise provided in this charter, which by the laws of this State are incident to savings-bank corporations.

SECT. 2. Said bank may receive deposits of money from any person or persons, on such terms and conditions as may be prescribed by it or its trustees, or be agreed to by the parties making the same, and may invest and manage the moneys deposited in or belonging to it in such securities and stocks and in such ways as may be for the convenience and advantage of the bank, subject, however, to the provisions of the existing laws of the State in relation to savings banks. Deposits and investments.

SECT. 3. For the better protection and security of the general depositors of the bank, it shall provide for and have a permanent guaranty fund of not less than twenty-five thousand dollars, with liberty to increase the same at pleasure to not exceeding two hundred thousand dollars. Said fund shall be kept and maintained as a guaranty to the general deposits for the repayment of said deposits according to the terms and conditions thereof, in case of any insufficiency of the assets of the bank to pay all of its liabilities; and the general deposits shall have the precedence of payment from the assets of the bank before payment from said assets on account of said guaranty fund, and no business in the way of receiving general deposits shall be transacted by the bank unless the amount of twenty-five thousand dollars shall then have been provided for said guaranty fund. The special deposits shall at no time be less than ten per cent of the general deposits, nor shall said special deposits be increased by amounts of less than ten thousand dollars at any one time. Guaranty fund.

SECT. 4. Special deposits may be received by the bank to constitute the guaranty fund before mentioned, which shall not be withdrawn except by the permission of the bank commissioners, nor at any time so as to reduce said fund below the amount required for the same as herein before provided. The Special deposits.

general deposits shall be entitled to such rate of interest from the bank as may be prescribed or agreed to, not, however, in any case to be less than four per cent per annum; and the book given general depositors on making their first deposit shall state therein the rate of interest to be paid, and no change can be made therefrom until after three months' notice of the proposed change has been given by mailing notice of same to each and every depositor, directed to his or her last known residence; and the special deposits for the guaranty fund shall not be entitled to any interest, but instead thereof shall have all the net income and profits of the bank above its expenses, the interest due the general deposits as aforesaid, and all losses of the bank. And said net income and profits may be divided proportionally among said special deposits at such times and in such ways as the bank or its trustees may order; *provided, however,* that such dividends shall be made only when the net resources of the bank above its expenses, its liabilities for the general deposits, and the guaranty fund aforesaid, shall be sufficient to pay the same.

Members of
corporation;
officers;
quorum.

SECT. 5. The special depositors for the guaranty fund, and their assigns, shall by virtue thereof become and be members of the corporation, and have and exercise all the rights and powers of the same, each special depositor being entitled to one vote for each one hundred dollars of his said deposit; but no member shall incur or be subject to any individual liability in any case for any debts or liabilities of the corporation. And the management and control of the affairs of the corporation shall be vested in a board of not less than five nor more than ten trustees, to be chosen by the members of the corporation. A majority of said board at any meeting duly notified shall constitute a quorum for the transaction of business. And said board shall have the power to make and establish such rules and regulations as they may think proper, for the transacting and governing the business of the corporation.

Real estate.

SECT. 6. Said bank may purchase and hold real estate to the value when purchased of not exceeding twenty-five thousand dollars, and may hold such amounts as may at any time be deemed advisable for the security and satisfaction of any dues to it.

SECT. 7. The tax on the special deposits shall be assessed Taxation.
and paid in the same manner and at the same rate as the law
requires on general deposits.

SECT. 8. Any three of the five grantees first named may First meeting.
call the first meeting of the corporation by notice in writing
to each grantee, or by one publication in some newspaper
printed in Concord, at least one week before the day of meet-
ing.

SECT. 9. The Legislature may alter, amend, or repeal this Subject to
repeal.
act whenever in their opinion the public good shall require it.

SECT. 10. This act shall take effect upon its passage. Takes effect
when.
[Approved September 14, 1883.]

CHAPTER 204.

AN ACT TO INCORPORATE THE SUNCOOK SAVINGS BANK.

SECTION 1. That William F. Head, Jesse Gault, Solomon Corporation
constituted.
Whitehouse, Martin H. Cochran, James G. Fellows, Addison
N. Osgood, John B. Haselton, George H. Larabee, Eleazer
Baker, Philip Sargent, David Hayes, Joseph H. Dearborn,
Joseph L. Hosmer, George P. Little, George P. Cofran,
Samuel Martin, Winthrop Fowler, James B. Tennant, Henry
T. Simpson, Warren D. Foss, James Thompson, George A.
Robie, Edmund E. Truesdell, Jacob E. Chickering, Hall B.
Emery, and John R. Kimball be and are hereby constituted a
body politic and corporate by the name of the Suncook Sav-
ings Bank, which bank shall be located in the town of Pem-
broke in this State ; and they and such other persons as shall
be duly elected and admitted members of said corporation at
regular meetings thereof, according to such by-laws as may
hereafter be established, shall be and remain a body politic
and corporate by said name, and are and shall be invested with
all the powers, rights, and privileges, and subject to all the
liabilities and duties, which are or may be incident to corpora-
tions of like nature by the laws of this State.

SECT. 2. Said corporation may receive from any person or Concerning
deposits.

persons disposed to enjoy the advantages thereof, any deposit or deposits of money, and may use, manage, and improve the same for the benefit of the depositors, in such manner as shall be convenient or necessary for the security and profitable investment thereof; and such deposits may be withdrawn, and the net income and profits of the deposits divided at such reasonable times, and in such manner and proportion, and subject to such equitable rules and regulations, as said corporation shall from time to time limit and appoint, agreeably to the laws of the State; and deposits may be received on special contract, on such lawful terms as shall not be prejudicial to the rights of other depositors.

Limitation as
to real estate.

SECT. 3. Said corporation may take and hold such real estate as shall be convenient for transacting the business thereof, but not exceeding ten thousand dollars in value at the time of the purchase or acceptance thereof; and may further take, hold, and dispose of such real estate as may in good faith be received by them by the way of security or payment for loans made by them, or for any debts, demands, or liabilities which may be owing or accrue to said corporation.

By-laws.

SECT. 4. Said corporation may, from time to time, make such by-laws, rules, and regulations for its government, and for the management of the business thereof, as shall not be inconsistent with this act and the laws of this State.

Books to be
inspected.

SECT. 5. The books and accounts of this corporation shall be at all times subject to the inspection of the Governor and Council, the bank commissioners, or other officers appointed by either branch of the Legislature for this purpose.

Subject to
repeal.

SECT. 6. The Legislature may at any time alter, amend, or repeal this act.

First meeting.

SECT. 7. The first nine persons named in the first section of this act, or any five of them, may call the first meeting of this corporation at such time and place and in such manner as they may think proper.

Takes effect
when.

SECT. 8. This act shall take effect from and after its passage.

[Approved August 28, 1885.]

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REPORT
OF THE
INSURANCE COMMISSIONER

OF
NEW HAMPSHIRE,

MADE TO
HIS EXCELLENCY THE GOVERNOR,

JUNE, 1887.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1887.

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INSURANCE COMMISSIONER'S REPORT.

To His Excellency the Governor :

I have the honor herewith to submit my eighteenth annual report, as the statute directs, covering the business of the year 1886, in accordance with statements filed in this office.

The fire insurance companies organized under the laws of this State consist of eight stock companies, sixteen state mutuals,* and twenty-one town mutuals. This constitutes the legitimate fire insurance force in this State, the outside companies heretofore licensed having ceased active operations in this locality, and thus deprived us, in this regard, of our share of interest in the much-discussed interstate commerce statute.

The underground incursionists with their contraband goods, however, still frequent our borders in search of premiums, some of them possibly leaving a quasi equivalent, while others will be safely beyond reach when most needed. The home fire companies assumed risks in this State during 1886 as follows :

Stock companies	.	.	.	.	.	.	\$31,936,240
State mutuals	.	.	.	.	.	.	15,530,194
Town mutuals (total risks)	.	.	.	.	.	.	2,609,924
Total	.	.	.	.	.	.	<hr/>\$50,076,358

This, it will be noticed, is insurance written in 1886, and does not therefore include risks still in force that were written by these

* Another company has been organized in Concord, too recently to make statement, to be known as the "American Manufacturers' Mutual Insurance Company," — Obadiah Morrill, secretary.

companies in previous years, which would probably carry the amount to about \$60,000,000.

I learn by responses to a circular sent to the fire companies that withdrew from the State, that December 31, 1886, they had still in force in this State risks to the amount of \$26,549,958; also through the same circular, that the associated manufacturers' mutuals, under their peculiar system, had risks in force in this State at the same date amounting to the sum of \$35,047,729. The underground operators also have no inconsiderable amount at risk in the State, although I think this amount has decreased materially since several of the wild-cat genus collapsed and left their victims clawing at the air.

RECAPITULATION.

Home companies, at risk	\$60,000,000
Retired companies, at risk	26,549,958
Manufacturers' mutuals, at risk	35,047,729
Total	<u>\$121,597,687</u>

The very large amount written by home companies during 1886 is a surprise in view of the generally understood fact, that lines have been reduced, and that there is more property than usual left uninsured in consequence of the increased rates charged. This, however, may be accounted for in part by the fact, well known to insurance men, that heretofore large amounts have been written on sea-shore, mountain, and other boarding-houses by a good class of outside companies, though not licensed, that now refuse to insure in this State on account of their sympathy with the retired companies. It is well known, also, that insurance companies, licensed and unlicensed, in the large cities, have written this and some other classes of risks in this State heretofore, over their own counters, that will not do so now. This also was never reported to this office. All this property now falls into the hands of the home companies to the extent of their willingness to insure it, and is consequently reported to this office.

Cash premiums were received by home companies in 1886 to the amount of \$555,924,35, showing an average charge of 1.11 per cent

on the amount insured. I have no reliable means of ascertaining the amount of premiums taken by outside companies.

The total of losses paid by home companies in 1886 was \$112,030.01. By the circular before mentioned I learn that the retired companies paid losses in this State during the same period to the amount of \$155,487.06; the manufacturers' mutuals paid \$387.77; the few outside agency companies that responded to the circular paid on losses \$12,560.37. Those of this class doing the most business in the State, including several that have failed, declined to report.

RECAPITULATION.

Losses paid by home companies	\$112,030.01
Losses paid by retired companies	155,487.06
Losses paid by manufacturers' mutuals	387.77
Losses paid by outside agency companies	12,560.37
Total	<u>\$280,465.21</u>

TOWN MUTUALS.

As usual, I insert a table below combining these companies, and giving the results of several consecutive years. The sum of the losses and expenses of the past year, apportioned to the amount of risks carried, shows the cost of the insurance to have been nearly *fourteen cents* per one hundred dollars.

Date.	Amount at risk.	Premiums received.	Assessments made.	Losses.	Expenses.
December 31, 1883.	\$2,207,149.00	\$798.77	\$1,134.23	\$1,041.52	\$910.89
December 31, 1884.	2,226,008.00	620.37	1,594.13	2,120.72	762.75
December 31, 1885.	2,261,312.00	660.50	2,882.38	2,722.50	581.64
December 31, 1886.	2,609,924.00	1,240.74	2,372.72	2,071.98	1,493.50

STATE MUTUALS.

Of this class two only adhere to the primitive method of taking a nominal cash premium and relying upon assessments. These have been exceptionally favored during the past year. The remaining fourteen take a full cash premium, or intend to, supplemented by a note or stipulation in the policy issued for from one to three times the cash premium, liable to assessment in case the premium proves insufficient to cover the losses and expense of conducting the business. All these companies save one or two were organized by the agents of the retired companies, primarily, perhaps, to retain control of their business, but also to accommodate their customers as well.

Notwithstanding the unfriendly gibes and innuendoes so frequently flung at these agents during the protracted discussion, when the crisis came the people instinctively flocked to them for protection.

In fact, they knew not where else to go. Here the experience they had had in insurance business was invaluable. They adapted themselves to the situation in good faith and with alacrity, indignant toward the companies that so unceremoniously deserted and disconcerted them and their customers. Several mutual companies were very soon in working order and others appeared in due time, and the people, laying aside their old prejudices against mutual companies, gladly accepted their policies. They have all paid their losses promptly, and have more or less cash or available securities for future exigencies. Even if an assessment should occasionally become necessary, while the management is judicious, I have no doubt the mutual good faith of the people will meet it man fashion.

One of the exceptions mentioned above is the New Hampshire Manufacturers' Mutual, which was projected by associated business men. This company dispenses with agents, writes larger lines, and relies on frequent inspection of its risks. Two or three considerable losses befell this company during the summer and fall, but for several months past it has been signally favored above all the other companies, possibly the result of the frequent inspection of its risks. Although the company may not have grown so rapidly as its projectors anticipated, they have reason to congratulate themselves upon its present satisfactory condition.

STOCK FIRE COMPANIES.

The New Hampshire Fire is an old acquaintance, and its gratifying success is well known to the public. It is unnecessary, therefore, to recite its history. The others are all new. The Granite State and the People's, with solid capital and solid men to back them, were first in the field. Having insured a large amount of property all over the State, and, as insurance men say, "got full of risks," they deemed it advisable to broaden their field of operations under the sound theory that the strength of insurance is enhanced by its breadth. They accordingly applied for admission to other States. They have been cordially welcomed everywhere, and their success at home and abroad gives substantial promise of a prosperous and useful career.

With the exception of the Capitol Fire Association, which has already made a good start at home, the rest were first organized and operated as mutuals. Having, however, succeeded in raising capital stock of from \$20,000 to \$50,000, they have one after another changed their titles, abandoned the practice of taking notes, and are now doing a strictly stock business.*

I have examined the several changes from mutual to stock, as to the methods adopted to protect the mutual policy-holders, and believe the transfers have been made in good faith and acceptably to the insured. They propose to do business cautiously, writing small lines well scattered, and, as success will warrant, to increase their capital and enlarge their operations. The Capital Fire has already voted to double its capital the 1st of May, and the present stockholders, I learn, stand ready to take the new stock. While these small companies continue to be managed with vigor, skill, and prudence, they will deserve and receive the confidence of the insuring public.

GENERAL OBSERVATIONS.

Contrasting the receipts and losses of our home companies, the inexperienced or superficial observer would be very likely to catch at

*The Mascoma Fire (stock) had, just prior to rendering statement, page 32, re-insured the Mascoma Mutual, paying its policy-holders a handsome dividend.

the apparent large margin for profits ; but unlike most other kinds of business, this involves future contingencies to be provided for that must not be overlooked. Insurance companies take pay in advance for their services ; still the pay is not really theirs until the undertaking is completed. The risks written to a great extent are still new, and a large share of them have been taken for from three to five years. In these cases but a small part of the term has elapsed, consequently but a fraction of the work stipulated for is completed. No one can foresee whether or not any part of this apparent surplus will remain when the contract is carried to its termination. All new companies are simply experiments. They must first win and then retain the confidence of the public. In order to do this they must accumulate. Barely living, struggling along without growth, does not inspire confidence in an institution dependent upon the public for patronage. The plea that new premiums are all the while coming in is fallacious. Every new premium brings with it a new liability for which the company is responsible.

I regretted that any of the mutuals should commence making dividends to their policy-holders so early in their experience. I think a scrip dividend, if any, depending on future contingencies, would have been for the present, at least, preferable. The dividend may in equity belong to those who contribute to the surplus from which it is paid. But ordinarily some sacrifice must be made in inaugurating a new enterprise. Persistent members will reap the full benefit further on. The Massachusetts mutuals, now the strongest companies in that State, deferred dividends from two to five years. The Holyoke Mutual, which formerly did business in this State, adopted the cash-premium system in 1852, and in those easy-going times did not pay a dividend until 1856. In 1866 this same company lost in the Portland fire \$129,000, and in the great Boston fire of 1872 \$225,000. Both of these losses were paid in full without an assessment. This company is now paying sixty per cent dividends on all five-year policies. Of course it has required time and skillful management to secure these results. Lack of space forbids alluding to others of a similar character. Several were forced to make assessments to meet those extraordinary fires,

but they are now strong and paying dividends of from twenty to sixty per cent.

Persons desiring insurance should bear in mind that the new mutuals are conducted on a different plan from that which prevailed in this State thirty years ago. The prejudices that were born of the disastrous experience of the companies of that day should not attach to the mutuals under consideration.

The capital of all our stock companies might be doubled, and their number too, and they would then be inadequate to safely insure the insurable property of the State. There is, therefore, a necessity under existing circumstances for building up mutual companies.

By recurrence to figures already given it will be noticed that the home companies are not now carrying half of the insurance in force in the State, if the manufacturers' mutuals are included, and that they paid less than *forty per cent* of the losses that were paid during the past year. Most of the risks still carried by the retired companies will expire during the current year. The retired companies paid more than twice as much on losses in this State in 1885 as in 1886, and of course will pay much less in 1887, since their risks in force are much reduced by expirations. These facts may not be pleasant to contemplate, but it is unwise to ignore them and thus deceive ourselves. I do not allude to them to awaken anxiety, but as an admonition to our insurance companies to strengthen and fortify themselves for the protection they will be called upon to afford.

INSURANCE RATES.

Could some talismanic fountain or widow's cruse be improvised to draw from as fires occur to pay the losses, then indeed might the dreamy vagaries of people who are always grumbling about rates be realized. They crave a great and almost indispensable boon without paying a fair equivalent. Unfortunately for their theories, the business world is not conducted on this basis. It is needless to say to sensible men that the rates of premium must be sufficient to meet the losses and expenses, and, in stock companies, to pay in addition to this a fair dividend on the capital invested in the business ;

otherwise the insurance institution cannot long survive. All the incendiarisms and other frauds come into the premiums we pay for our insurance, and we cannot escape the burden thus imposed unless we can eliminate the perpetrators. The companies had no tabulated experience on different classes of risks to aid them in graduating the rates. To adjust this matter of rates with absolute equity is impracticable. If the fire loss was uniform from year to year, we might approximate the true equipoise, but we know this is not the case. Most of our companies commenced business with empty hands. No one put in capital expecting to sink it in the business, nor should this be the case. It is to be presumed the rates were fixed with the understanding that New Hampshire had heretofore been an unprofitable State in which to pursue the business of insurance. When the contrary is proved, it will be time to reconsider the subject. The rates may in some instances have been graded too high; but my own opinion is that the chief ground of complaint, if there is any, lies in the matter of discrimination as to the hazard assumed. Amendments may and doubtless should be made from time to time in this direction.

I am aware that insurance is a heavy tax on property and business enterprises; but the abatement of this burden must come, if it comes at all, mainly through the reduction of the fire waste. In my judgment, the experience of our companies to this date does not warrant any material reduction in the rates at this time, except where tangible improvement can be shown in the character of the risk. To drop a fraction below the requirement above indicated would soon result in the subversion of confidence in our insurance, and create discontent instead of the quiet acquiescence that now generally prevails. As with other commodities, lowering the price will inevitably deteriorate the quality.

THE INSURANCE SITUATION.

The panicky state of feeling that prevailed among the people of this State for a time has largely subsided. Agitation is usually wholesome and frequently produces unlooked-for good results. It is generally admitted in the present case that for a while, at least, it resulted in no inconsiderable reduction of the fire waste. The

attention of every thoughtful person was turned to the situation of his property and the prospective means of protecting it. Large expenditures, both public and individual, were incurred to procure appliances for extinguishing fires, improving risks to lessen the hazard, employing watchmen night and day ; and the rule has been a closer supervision generally. This increased care has extended more or less to smaller business risks, also to dwellings and their surroundings, doubtless with beneficial results. My apprehension has been that this increased vigilance would prove spasmodic. When the presence of a burglar is announced in the neighborhood every bolt and fastening is attended to with scrupulous care. As the excitement dies away the people relapse into their former condition of indifference. The recent destructive fires point in this direction. It will be recollected that these fires, either of them larger than any that occurred in the past year, mark the beginning of the present year. In each case extensive business blocks were consumed, and for the first time the insurance was found to be mostly in home companies.

To avert these calamities considerable has been done during the past, but there is still room and occasion for pursuing the work with unabated diligence. There is not a manufacturer, trader in merchandise, nor a householder but that may improve upon the past. Efforts in the direction of fire prevention constitute the main hope for the reduction of rates, and thereby lightening the burden of insurance upon property involved in all business enterprises.

Despite the admission that the fire loss was less in 1886 than heretofore in the State, the "Chronicle," usually relied upon for statistics, places our loss, after careful revision, at about \$850,000, or nearly up to the average of former years; while the "Commercial Bulletin," which has made the subject a specialty, places it at about \$600,000. A large share of this discrepancy is accounted for by the fact that the "Chronicle" includes in its estimate the extensive "forest fires," which it will be remembered were very heavy during the summer and fall, both in Grafton and Coös counties, while the "Bulletin," taking a different view of this matter, did not include these fires in its estimate.

But even taking the lowest estimate, this is an enormous waste

of the precious fruits of industrial toil. Insurance companies may pay the loss, but they do not restore the property. It is so much taxable wealth annihilated, and every citizen indirectly shares the loss. Much of this waste is the result of sheer negligence. Unavoidable accident makes no such record. The associated manufacturers' mutuals, during the past year, had over \$35,000,000 at risk in this State, and paid only \$387.77 for losses, which was but a small fraction over *one cent* on each *thousand dollars* of insurance carried. They insure factories with their boarding-houses and other appurtenances. This remarkable result has been attained by educating and requiring the owners and managers of these hazardous properties to adopt such preventive measures as have from time to time been suggested by experience and careful observation. I introduce these facts to show what may be accomplished. Were our fire companies to unite in the employment of an active and competent inspector or two to visit all the larger risks at least quarterly, I have no doubt it would prove a profitable investment. Could property-owners be induced to exercise a degree of care and watchfulness over their property ordinarily extended to pets, the fire waste would be reduced one half the first year.

The inadequacy of our present insurance force should stimulate to the adoption of every available precaution by all business men and householders. This will not only strengthen what force we have, but invite others to embark in the insurance business. Not a single outside fire company has offered to comply with our laws since the memorable stampede of September, 1885.

The present home companies combined now write, unless the property is exceptionally hazardous, about \$30,000 on a single risk. This is regarded as the outside limit of safety. When a succession of these risks occur in close proximity it requires but little sagacity to discover that the situation is critical and must be very embarrassing. Occasionally persons call at this office who have exhausted the limit of the home companies, to inquire where they can procure more insurance. I usually suggest outside mutuals, of which there are several of tolerably good repute, who rely on inspection instead of doing an agency business, for the reason that I believe in free trade in this class of insurance, although this question has never been clearly adjudicated by the courts, as it is likely to be in

the near future. Prudent men patronize these companies, while others accept the policies of underground operators, too weak to comply with insurance laws, or wild cats, against both of which I have always deemed it my duty to caution the public.

LEGISLATION.

My policy has always been to avoid, instead of favoring, legislation. Experience does not point to it as an effective panacea for the ills that afflict the public in their minor transactions at least. The people incline to the broadest freedom. I have heretofore suggested a law regulating the construction of buildings. While a person may possess the right to do with his own as he chooses, to a limited extent, he has not the right to endanger or expose his neighbor. Next to accumulated filth and inexcusable negligence, the "defective chimney" is the greatest incendiary. I have recommended legislation to abate and punish the crime of over-insurance, so detrimental to the public weal, and which still prevails; also to provide for an immediate inquisition after the occurrence of every fire. But no action has followed. I think some legislation is demanded to regulate and limit the investment of insurance funds to secure increased safety. These funds are subjected necessarily to the great risk of the fire hazard, and should not incur a second hazard through questionable investments. I think, also, that the cash-premium mutuals should be required by law to possess available cash funds sufficient to re-insure their risks in force on the *pro-rata* basis before making any dividend to their policy-holders, and that such dividends should then be made in scrip, payable after a definite period if intervening success will warrant it. In view of the situation, it has been very properly suggested as a means of inviting capital to enlist in the insurance business, that all insurance capital be exempt from taxation.

THE OUTSIDE WORLD.

It is needless to say this fire insurance report is written for the latitude and people of New Hampshire; others need not read it. But although isolated, a brief allusion to what is going on "over there" may not be wholly devoid of interest.

The fire loss in the United States (*including New Hampshire*) in 1886 is set down at about \$105,000,000. Of this amount the insurance companies have paid \$60,361,427. The companies generally appear to be in good condition, having increased their assets and surplus during the year, and most of them have paid fair dividends. The increase of assets, however, seems to have been derived from the appreciation of securities rather than from the legitimate profits resulting from the business.

For several months past there has been a fierce conflict waged between the companies and brokers down in a somewhat famed locality frequently called Gotham. The numerous fire insurance companies there centered combined, with great unanimity, to limit the brokers' commissions to ten per cent, for the laudable purpose of curtailing expenses and thereby reducing the cost of insurance. The struggle between these contending forces was very desperate, the battle hanging in even scale. Recently, however, the timid old Williamsburg City broke ranks, whereupon the hopeful compact made haste to surrender, leaving the cormorant brokers and their seconds, the agents, complete masters of the situation. Twenty to forty per cent commissions will now be in order. Meantime the "army of specials," so cleverly noticed by the genial "Underwriter," continue to enjoy their pleasant drives and luxurious dinners. Everything on this side of the line is lovely, and the plucked "goose hangs high." The insurance journals chime in after the fact with their accustomed "I told you so," and forecast "confusion worse confounded" in the future, while the vanquished companies are struggling desperately to scoop in premium fuel to feed and propel all this extravagant machinery and keep their own heads above water. The whole conduct of the business is a complete travesty of all sensible and honorable business methods, and the people who purchase insurance are the victims. These same influences permeate the business more or less outside of the aforesaid Gotham. No wonder the people are casting about and organizing for deliverance. It is hoped the next arrivals will report improvement in the general situation. We shall watch while we wait in hope.

LIFE INSURANCE.

Nothing of marked interest has occurred in this department of business during the year. I insert the usual summary below. Tabulations may be found commencing on page 59.

1885.

Number of policies issued, excluding industrial	2,289
Amount insured by same	\$3,349,822.00
Number of policies in force December 31, 1885	7,801
Amount insured by same	\$13,328,190.00
Premiums received in 1885	341,965.24
Losses and claims paid	308,983.58

1886.

Number of policies issued, excluding industrial	3,341
Amount insured by same	\$4,534,356.00
Number of policies in force December 31, 1886	7,605
Amount insured by same	\$12,694,803.00
Premiums received in 1886	379,037.55
Death losses and other claims paid, same time	306,263.29

Several new agents are entering the field, which indicates a revival of the business. Other localities report a greatly increased volume of business during the past year. To show the magnitude of this business I take liberty to cull a few statistics from the New York insurance report, just published, showing the business of the companies operating in that State, most of which are licensed in this State. The gross assets held by these companies December 31, 1886, were \$560,125,359.89, an increase during the previous year of \$36,460,681.60; the liabilities, except capital stock, were \$458,862,932.46; surplus as regards policy-holders was \$101,262,427.43; gross income was \$116,961,315.10; gross expenditures were \$82,319,096.16, of which \$60,928,054.63 were paid to policy-holders.

Present indications promise a very large increase of business the current year. People are considering the subject more favorably since the variety of modifications in the policy contract have simpli-

fied and brought the subject within easier comprehension. The cruel forfeiture practice for delinquent payment of premiums, aside from tontine policies, has been abandoned. An equitable "paid up" is now usually provided for, proportionate to the amount already paid. As the institution extends its beneficent operations, instances are occurring in almost every locality in which the proceeds of the life insurance policy are all there is left for the dependent family upon the demise of the natural bread-winner. These cases arrest the attention of persons of moderate means, and even well-to-do business men, and it is becoming the common practice to procure more or less life insurance to fortify against the fluctuating and uncertain contingencies arising in business operations. It may be somewhat expensive, but there is no possession that affords more substantial comfort than the policy of a well-selected life insurance company. The rule "no great good without cost" is inexorable; but this should deter no one from putting forth every reasonable effort to provide for the loved and loving dependents.

ASSESSMENT INSURANCE.

Three companies of this class have been chartered by the Legislature, and they have reported to this office. Their annual statements may be found commencing on page 50, and will speak for themselves. There has been no marked change in the situation. Among all the private associations of a very similar character there is more or less competition for membership; hence the increase has not been, perhaps, equal to expectation, although they have more than held their own. The Pemigewasset Mutual Relief, latest in the field, it will be noticed, has acquired but a limited membership, although they report gratifying success since the annual report was rendered.

I regret to learn that what is styled the "club plan" has been introduced in some localities. As I understand it, ten persons club together, agreeing as deaths occur in the club that half of the insurance paid for by the deceased member shall inure to the surviving members, and that the remaining half may go to the bereaved family or dependents. It would seem that the bare statement of the plan could not fail to expose its rank injustice, to say nothing

of its influence against good morals and public policy. Of course, each member hopes, not to say expects, to derive pecuniary benefit by sharing half the insurance the deceased has paid for, and which should go to his bereaved and perhaps helpless family. It will be noticed that the last survivor, if the scheme holds out, will have shared the insurance of each of his deceased brethren, and *his* beneficiaries will be entitled to the full insurance he has paid for. Probably each expects to be the last survivor. I should be sorry to know that men can be found willing to enrich themselves through such heartless methods.

I still hear of itinerant assessment associations from abroad prowling about the State, beguiling the unwary. It is wiser and safer for those who desire this class of insurance to patronize home institutions, especially when they are certainly as good as the foreign article, contraband at best.

MISCELLANEOUS COMPANIES.

The Travelers' Life and Accident, tabulated with the life companies, the Fidelity and Casualty and the American Surety, both of New York, the Accident of North America and the Guarantee, both of Montreal, the Employers' Liability of London, and the Hartford Steam-boiler Inspection of Hartford, are all still licensed to do business in this State. They are believed to be sufficient for the needs of our people in their several specialties, and there is therefore no occasion for employing the services of unlicensed marauders, which are very liable to prove broken reeds.

An exhaustive examination of the Fidelity and Casualty and the American Surety is now in progress in New York before Hon. Noah Davis, by order of the court. This investigation is to include not only the assets and liabilities of these companies, but their entire methods of business, in order to determine as to the probabilities of their fulfilling the obligations they undertake in the way of probate and other surety bonds. I hoped to be able to report the result, but the investigation is not yet completed. Should anything unfavorable be developed, the public will be immediately notified.

The Metropolitan Life, of New York, also tabulated with the life companies, is mainly devoted to what is styled industrial insur-

ance. This is designed for people of limited means, and offers insurance of from \$14 to \$1,000, the premiums to be called for weekly at the home or place designated. The company has over \$1,000,000 in policies in force, 6,060 of them in this State, and is rapidly extending its business.

The life and miscellaneous insurance companies of other States licensed to do business in this State have paid the tax of one per cent on premiums received, amounting to \$3,875.07.

Respectfully submitted.

OLIVER PILLSBURY,
Insurance Commissioner.

STATE MUTUAL FIRE INSURANCE COMPANIES.

ÆTNA MUTUAL FIRE INSURANCE COMPANY. — CONCORD, N. H.

FRANK A. MCKEAN, President.

OBADIAH MORRILL, Secretary.

Commenced business Aug. 1, 1886.

ASSETS.

Amount of cash loaned by the company on mortgages of real estate	\$3,400.00
Amount of cash actually on hand in the office of the company.....	33.36
Amount deposited in the First National Bank ..	1,703.27
Cash due for premiums unpaid and in course of collection.....	500.86
Amount of interest accrued on the foregoing investments.....	60.50

Gross present assets of the company, except deposit notes or policy stipulations liable to assessment	\$5,697.99
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Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$17,171.02
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LIABILITIES.

Whole amount of losses adjusted, but not yet due.....	\$265.11
Unearned premiums taken at fifty per cent of actual gross premiums received.....	4,275.25
Whole amount of all other demands against the company.....	179.76

Gross present liabilities of the company.....	\$4,720.12
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INCOME.

Net amount of actual cash premiums received during the year.....	\$8,585.51
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Gross cash income actually received during the year.....	\$8,585.51
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Whole amount of premium notes or policy stipulations liable to assessment.....	\$17,259.58
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EXPENDITURES.

Net amount of losses paid during the year.....	\$982.39
Whole amount paid during the year for commission on premiums	1,287.83

Whole amount paid during the year for salaries, fees, compensation of officers and all other employes of the company.....	\$329.91
Paid accrued interest on securities purchased.....	28.10
Whole amount of all other expenditures during the year.....	322.79
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Gross cash expenditures during the year.....	\$2,948.02

GENERAL ITEMS.

Whole amounts of risks written during the year.....	\$460,626.10
Net amount in force end of year 1886.....	451,876.00
Whole amount of premium notes or policy stipulations liable to assessment on outstanding risks	17,171.02
Whole amount of cash received for insurance of other companies..	1,256.35

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$454,426.10
Whole amount of premiums received thereon in cash... ..	8,478.20
Whole amount of deposit notes received or policy stipulations due thereon.....	16,956.40
Whole amount of losses paid during the year.....	982.39
Whole amount of losses incurred during the year.....	1,247.50

BELKNAP COUNTY MUTUAL FIRE INSURANCE COMPANY.—TILTON, N. H.

CHARLES T. OLNEY, President.

R. S. PERKINS, Secretary.

Commenced business Dec. 28, 1885.

ASSETS.

Cash deposited to the credit of the company in the Franklin National Bank.....	\$1,256.41
Cash due the company for premiums in course of collection.....	114.58
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$1,370.99
Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$5,428.40

LIABILITIES.

Unearned premiums taken at fifty per cent of gross premiums received.....	\$1,357.10
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Gross present liabilities of the company.....	\$1,357.10

INCOME.

Net amount of actual cash premiums for the year received.....	\$3,053.73
Gross cash income actually received during the year.....	3,461.36
Whole amount of premium notes or policy stipulations liable to assessment	6,922.72

EXPENDITURES.

Net amount of losses paid during the year.....	\$864.03
Whole amount paid during the year for commissions on premiums	458.05
Whole amount paid during the year for salaries of officers and all other employes of the company	175.00
Whole amount of all other cash expenditures during the year.....	185.66
Gross cash expenditures during the year.....	<u>\$1,682.74</u>

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$197,305.00
Net amount in force Dec. 31, 1886.....	154,255.00
Whole amount of premium notes or policy stipulations liable to assessment	5,428.40

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$197,305.00
Whole amount of premiums received thereon in cash.....	3,461.36
Whole amount of deposit notes received or policy stipulations taken.....	6,922.72
Whole amount of losses paid during the year.....	864.03
Whole amount of losses incurred during the year.....	864.03

CHESHIRE COUNTY MUTUAL FIRE INSURANCE COMPANY.—KEENE, N.H.

JOHN HENRY ELLIOT, President.

WM. H. ELLIOT, Secretary.

Commenced business in year 1825.

ASSETS.

Cash deposited to the credit of the company in the Cheshire National Bank.....	\$3,039.16
In the Cheshire Provident Institution.....	3,050.00
In the Keene Five-Cent Savings Bank.....	1,029.77
In the Guaranty Savings Bank.....	1,029.77
Net amount of cash due the company for premiums in course of collection	2,896.98
Interest accrued, but not yet due	37.50
Amount of all other property owned by the company.....	125.00
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment	<u>\$11,208.18</u>
Amount of premium notes held by the company on policies now in force	\$36,177.76

LIABILITIES.

Whole amount of losses adjusted, but not yet due	\$1,585.00
Unearned premiums taken at fifty per cent of actual gross premiums received.....	16,543.31

Whole amount due other companies for re-insurance.....	\$10.00
Whole amount of all other demands against the company.....	782.81
Total	<u>\$18,921.12</u>

INCOME.

Net amount of cash premiums received during year.....	\$15,945.86
Whole amount of cash received from all other sources.....	109.54
Gross cash income actually received during the year.....	<u>\$16,055.40</u>
Whole amount of premium notes or policy stipulations liable to assessment received during the year.....	\$8,057.86

EXPENDITURES.

Net amount of losses paid during the year.....	\$6,195.85
Whole amount paid during the year for commissions on premiums	2,212.19
Whole amount paid during the year for salaries, charges of officers and all other employes of the company.....	442.60
Whole amount paid during the year for rents.....	75.00
Whole amount of all other cash expenditures during the year.....	309.21
Gross cash expenditures during the year.....	<u>\$9,234.85</u>

GENERAL ITEMS.

Whole amount of risks outstanding, per last statement....	\$3,019,165.66
Whole amount of risks written during the year.	1,231,417.74
Net amount in force Dec. 31, 1886.....	3,199,067.40
Whole amount of premium notes or policy stipulations liable to assessment	36,177.76
Whole amount of losses incurred during the year.	7,675.35
Have you ever issued any policies on which the insured is not liable to assessment? Answer: Yes. If so, how much cash has been received on all such policies now in force? Answer.....	8,642.09

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$1,231,417.74
Whole amount of premiums received thereon in cash.....	15,469.52
Whole amount of deposit notes received in 1886.....	8,057.86
Whole amount of losses paid during the year.....	6,195.85
Whole amount of losses incurred during the year	7,675.85

CONCORD MUTUAL FIRE INSURANCE COMPANY.—CONCORD, N. H.

SAMUEL C. EASTMAN, President.

RUFUS P. STANIELS, Secretary.

Commenced business Oct. 17, 1885.

ASSETS.

Cash market value of stocks, bonds, and other securities owned by the company, as follows:

10 shares Pullman Palace Car Co.....	\$1,400.00
10 shares St. Louis & San Francisco R. R., 1st pfd....	1,140.00

10 shares Northern R. R. Co.....	\$1,260.00	
12 shares Pemigewasset Valley R. R. Co.....	1,260.00	
10 shares Atchison, Topeka & Santa Fé R. R. Co.....	960.00	
1 share Amoskeag Manufacturing Co.....	2,235.00	
	<hr/>	\$8,255.00
Amount of cash actually on hand in the office of the company.....		492.41
Amount deposited to the credit of the company in the First National Bank.....		822.96
In the Merrimack County Savings Bank.....		2,148.20
In the New Hampshire Savings Bank.....		3,125.08
Net amount of cash due the company for premiums in course of collection.....		936.42
Interest accrued, but not yet due.....		148.72
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.		\$15,928.79
Amount of premium or deposit notes held by the company, liable to future assessment for payment of claims.....		\$34,064.60

LIABILITIES.

Whole amount of losses adjusted, but not yet due	\$30.00
Unearned premiums taken at fifty per cent of actual gross premiums received.....	8,520.89
Whole amount due, or to become due, for cash premiums returnable as profits or surplus on terminated policies.....	98.80
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Gross present liabilities of the company.....	\$8,649.69

INCOME.

Net amount of actual cash premiums received during year.....	\$15,730.12
For interest and dividends and from all other sources.....	195.10
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Gross cash income actually received during the year	\$15,925.22
Whole amount of premium notes or policy stipulations liable to assessment received during the year.....	\$31,397.80

EXPENDITURES.

Net amount of losses paid during the year.....	\$1,586.54
Whole amount paid during the year for commissions on premiums	2,342.89
Whole amount paid during the year for salaries of officers, clerks, and all other employés of the company.....	1,087.50
Whole amount of cash premiums returned during the year as profits or surplus on terminated policies	412.45
Whole amount of all other cash expenditures during the year. ...	563.22
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Gross cash expenditures during the year.....	\$5,992.60

GENERAL ITEMS.

Whole amount of risks outstanding, per last statement	\$501,606.00
Whole amount of risks written during the year.....	1,118,915.16
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Total	\$1,620,521.16
Whole amount of risks terminated during the year.....	401,300.00
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Net amount in force Dec. 31, 1886.....	\$1,219,221.16

Whole amount of premium notes or policy stipulations liable to assessment	\$34,064.60
Whole amount of losses incurred during the year	1,173.04
The percentage of the cash premium returned during the year as profits or surplus is ten per cent. The average percentage returned to date is ten per cent on expired policies.	
Whole amount of cash received for insurance of other companies	17.97

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$1,110,865.16
Whole amount of net premiums received thereon in cash.....	15,516.12
Whole amount of deposit notes received or policy stipulations due thereon.....	30,969.80
Whole amount of losses paid during the year.....	1,586.54
Whole amount of losses incurred during the year.....	1,173.04

DOVER MUTUAL FIRE INSURANCE COMPANY. — DOVER, N. H.

DANIEL HALL, President.

H. A. REDFIELD, Secretary.

Commenced business Nov. 25, 1885.

ASSETS.

Amount of cash on hand in the office of the company.....	\$127.58
Amount deposited to the credit of the company in the Dover National Bank.....	7,488.53
Net amount of cash due the company for premiums in course of collection	706.58
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$8,322.69
Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$17,080.18

LIABILITIES.

Amount of guaranty fund held by the company.....	\$2,200.00
Unearned premiums taken at fifty per cent of actual gross premiums received.....	4,259.42
Gross present liabilities of the company.....	\$6,459.42

INCOME.

Net amount of cash premiums received during year.....	\$8,115.60
Gross cash income actually received during year.....	\$8,115.60
Whole amount of premium notes or policy stipulations liable to assessment.....	\$17,080.18

EXPENDITURES.

Net amount of losses paid during the year.....	\$1,421.76
Whole amount paid during the year for commissions on premiums	1,224.30
Whole amount paid during 1885 and 1886 for salaries of officers and all other employes of the company.....	700.00
Whole amount paid for rents to date.....	116.67
Whole amount of all other expenditures.....	186.30
Gross cash expenditures during the year.....	<u>\$3,649.03</u>

GENERAL ITEMS.

Whole amount of risks outstanding, per last statement..	\$145,275.00
Whole amount of risks written during the year.....	<u>520,677.75</u>
Total	\$665,952.75
Whole amount of risks terminated during the year.....	\$165,090.00
Whole amount of risks re-insured during the year.....	<u>500.00</u>
Total deductions	165,590.00
Net amount in force Dec. 31, 1886.....	<u>\$500,302.75</u>
Whole amount of premium notes or policy stipulations liable to assessment.....	17,080.18
Whole amount of losses incurred during the year.....	1,421.76

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$520,677.75
Whole amount of premiums received thereon in cash.....	8,540.09
Whole amount of deposit notes received or policy stipulations due thereon.....	17,080.18
Whole amount of losses paid during the year.....	1,421.76
Whole amount of losses incurred during the year....	1,421.76

EXETER MUTUAL FIRE INSURANCE COMPANY.—EXETER, N. H.

CHARLES H. BELL, President.

ARTHUR O. FULLER, Secretary.

Commenced business Oct. 15, 1885.

ASSETS.

Cash market value of stocks, bonds, and other securities owned by the company, as follows :

1 Chicago 7 per cent bond	\$1,100.00
1 Minneapolis 4½ per cent bond.....	<u>1,080.00</u>
Total market value.....	\$2,180.00
Amount of cash on hand in the office of the company.....	231.65
Deposited to the credit of the company in the National Granite State Bank.....	9.07
In the Union Five-Cent Savings Bank.....	506.74
In the International Trust Company.....	1,386.24

Net amount of cash due the company for premiums in course of collection.	\$1,058.36
Amount of interest due or accrued on the foregoing investments...	156.66
Amount of all other property owned by the company.....	250.00
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$5,778.72
Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$15,118.02

LIABILITIES.

Unearned premiums taken at fifty per cent of gross premiums received.....	\$3,789.60
Whole amount of return premiums due on canceled policies.....	2.80
Whole amount due, or to become due, for cash premiums returnable as profits or surplus on terminated policies.....	76.95
Whole amount of all other demands against the company.....	40.00
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Gross present liabilities of the company.....	\$3,909.35

INCOME.

Net amount of actual cash premiums received during the year.....	\$6,606.10
For interest and from all other sources.....	152.73
Premiums received on policies written in 1885.....	504.10
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Gross cash income actually received during the year.....	\$7,262.93
Whole amount of premium notes or policy stipulations liable to assessment on policies written in 1886.....	\$13,353.16

EXPENDITURES.

Net amount of losses paid during the year.....	\$2,711.53
Whole amount paid during the year for commissions on premiums	951.57
Whole amount paid during the year for salaries of officers, directors, attorneys, clerks, and all other employes of the company...	677.62
Whole amount of cash premiums returned during the year as profits or surplus on terminated policies.....	61.10
Whole amount of all other expenditures during the year.....	206.85
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Gross cash expenditures during the year.....	\$4,608.67

GENERAL ITEMS.

Whole amount of risks outstanding, per last statement	\$326,605.00
Whole amount of risks written during the year.....	438,848.00
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Total.....	\$765,453.00
Whole amount of risks terminated during the year.....	228,181.67
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Total deductions.....	228,181.67
Net amount in force Dec. 31, 1886.....	537,271.33
Whole amount of premium notes or policy stipulations liable to assessment.....	15,118.02
Whole amount of losses incurred during the year.....	541.53

The percentage of the cash premium returned during the year as profits or surplus is four per cent in October and November and five and seven tenths in December.

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$438,848.00
Whole amount of premiums received thereon in cash.....	6,759.58
Whole amount of deposit notes received or policy stipulations due thereon.....	13,353.16
Whole amount of losses paid during the year.....	2,711.53
Whole amount of losses incurred during the year.....	541.53

HOME MANUFACTURERS AND TRADERS' MUTUAL INSURANCE COMPANY. — CONCORD, N. H.

FRANK A. MCKEAN, President.

OBADIAH MORRILL, Secretary.

Commenced business Feb, 1, 1886.

ASSETS.

Amount of cash loaned by the company on mortgages of real estate.....	\$6,416.00
Amount of cash on hand in the office of the company.....	13.35
Deposited to the credit of the company in the Loan and Trust Savings Bank.....	2,000.00
In the Merrimack County Savings Bank.....	1,000.00
In the Mechanics' National Bank.....	534.95
Net amount of cash due the company for premiums in course of collection.....	460.88
Interest accrued, but not yet due.....	192.72
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$10,617.90
Amount of liability to assessment by reason of policy stipulations for which no deposit note is taken.....	\$48,964.80

LIABILITIES.

Whole amount of losses adjusted, but not yet due.....	\$1,660.42
Unearned premiums computed <i>pro rata</i> on unexpired time of policies.....	9,754.97
Whole amount of all other demands against the company.....	546.06
Gross present liabilities of the company.....	\$11,961.45

INCOME.

Net amount of cash premiums received during the year.....	\$23,591.99
Whole amount of cash received during the year for interest on mortgages.....	29.34
Gross cash income actually received during the year.....	\$23,621.33
Whole amount of premium notes or policy stipulations liable to assessment.....	\$51,526.50

EXPENDITURES.

Net amount of losses paid during the year.....	\$8,192.58
Whole amount paid during the year for commissions on premiums	3,538.79
Whole amount paid during the year for salaries, charges of officers, clerks, and all other employes of the company.....	890.32
Whole amount of all other expenditures during the year.....	574.46
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Gross cash expenditures during the year.....	\$13,196.15

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$1,307,226.73
Net amount in force Dec. 31, 1886.....	1,157,919.31
Whole amount of premium notes or policy stipulations liable to assessment.....	48,964.80
Whole amount of losses incurred during the year.....	9,853.00

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$1,293,726.73
Whole amount of premiums received thereon in cash.....	25,440.07
Whole amount of deposit notes received or policy stipulations due thereon.....	50,880.14
Whole amount of losses paid during the year.....	6,986.01
Whole amount of losses incurred during the year.....	8,646.43

MANUFACTURERS AND MERCHANTS' MUTUAL INSURANCE COMPANY.—
CONCORD, N. H.

EDWARD G. LEACH, President.

LYMAN JACKMAN, Secretary.

Commenced business Jan. 4, 1886.

ASSETS.

Amount of cash loaned by the company and secured by mortgages of real estate	\$1,800.00
Cash market value of stocks, bonds, and other securities owned by the company, as follows:	
New Hampshire Trust Co. debentures.	\$5,000.00
Kansas Loan and Trust Co. debentures.....	3,000.00
Kansas Investment Co. bonds.....	3,000.00
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	11,000.00
Amount of cash actually on hand in the office of the company	567.60
Deposited to the credit of the company in the National State Capital Bank	1,544.07
In the Loan and Trust Savings Bank.....	5,477.62
Net amount of cash due the company for premiums in course of collection.....	477.10
Interest accrued, but not yet due	349.59
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$21,215.98

Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$27,608.15
Amount of liability to assessment by reason of policy stipulations for which no note is taken.....	41,094.17
Total.....	<u>\$68,702.32</u>

LIABILITIES.

Whole amount of losses adjusted, but not yet due.....	\$1,221.76
Unearned premiums taken at fifty per cent of gross premiums received.....	17,175.58
Gross present liabilities of the company.....	<u>\$18,397.34</u>

INCOME.

Net amount of cash premiums received during the year.....	\$35,414.46
Whole amount of cash received during the year for interest on mortgages of real estate.....	17.80
For interest and dividends from all other sources.....	177.62
Gross cash income actually received during the year.....	<u>\$35,609.88</u>
Whole amount of premium notes or policy stipulations liable to assessment.....	<u>\$76,064.30</u>

EXPENDITURES.

Net amount of losses paid during the year.....	\$6,679.62
Whole amount paid during the year for commissions on premiums	5,487.90
Whole amount paid during the year for salaries of officers, clerks, and all other employés of the company.....	1,550.00
Whole amount paid during the year for rents ...	100.00
Paid for office and incidental expenses.....	929.97
Gross cash expenditures during the year	<u>\$14,747.49</u>

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$2,059,155.82
Net amount in force Dec. 31, 1886.....	1,829,425.82
Whole amount of premium notes or policy stipulations liable to assessment	68,702.32
Whole amount of losses incurred during the year.....	7,901.38
Whole amount of cash received for insurance of other companies	480.96

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$2,005,955.82
Whole amount of premiums received thereon in cash.....	36,971.98
Whole amount of deposit notes received or policy stipulations due thereon	73,943.96
Whole amount of losses paid during the year.....	6,632.43
Whole amount of losses incurred during the year.....	6,632.43

INDIAN HEAD MUTUAL FIRE INSURANCE COMPANY. — NASHUA, N. H.

JOHN A. SPALDING, President.

MARK R. BUXTON, Secretary.

Commenced business Nov. 16, 1885.

ASSETS.

Amount of cash loaned by the company and secured by mortgages of real estate	\$4,450.00
New England Loan and Trust Co. deb. bonds.....	1,500.00
Amount of cash on hand in the office of the company.....	679.43
Deposited to the credit of the company in the City Savings Bank..	2,300.00
In the Mechanics' National Bank.....	1,100.00
Net amount of cash due the company for premiums in course of collection	1,469.14
Interest accrued, but not yet due	183.05
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment....	\$11,681.62
Amount of premium notes held by the company liable to future assessment for payment of claims.	\$16,511.78

LIABILITIES.

Guaranty fund.....	\$5,000.00
Unearned premiums taken at fifty per cent of actual gross premiums received.....	4,127.94
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Gross present liabilities of the company	\$9,127.94

INCOME.

Net amount of cash premiums received during the year.....	\$8,539.41
Whole amount of cash received during the year for interest and from all other sources.....	145.26
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Gross cash income actually received during the year.....	\$8,684.67
Whole amount of premium notes or policy stipulations liable to assessment	\$16,511.78

EXPENDITURES.

Net amount of losses paid during the year.....	\$1,039.87
Whole amount paid during the year for commissions on premiums	1,280.30
Whole amount paid during the year for salaries of officers, clerks, and all other employes.....	667.00
Whole amount of cash premiums returned during the year as profits or surplus on terminated policies.....	47.00
Whole amount paid during the year for rents.....	39.00
Dividends paid on guaranty fund....	278.25
Paid for office and incidental expenses.....	363.36
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Gross cash expenditures during the year.....	\$3,714.78

GENERAL ITEMS.

Whole amount of risks written by the company.....	\$735,352.42
Net amount in force Dec. 31, 1886.....	556,902.96
Whole amount of premium notes or policy stipulations liable to assessment	16,511.78
Whole amount of losses incurred during the year.....	1,039.87
The percentage of the cash premium returned during the year as profits or surplus is ten per cent.	

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year....	\$536,047.42
Whole amount of net premiums received thereon in cash....	7,321.96
Whole amount of deposit notes received or policy stipulations due thereon.....	16,511.78
Whole amount of losses paid during the year.....	1,039.87
Whole amount of losses incurred during the year.....	1,039.87

MERRIMACK COUNTY MUTUAL FIRE INSURANCE COMPANY.—WEBSTER, N. H.

F. B. SAWYER, President.

SHERMAN LITTLE, Secretary.

Commenced business March 31, 1879.

Amount of premium notes held on the company on policies now in force.....	\$12,250.00
Amount of property at risk Dec. 31, 1886.....	224,980.00
Last assessment made, April 14, 1885.....	1,127.49
Amount collected on last assessment made.....	1,116.78
Number of policies issued during past year.....	33
Amount of cash premiums received.....	\$3.80
Number of policies expired during the past year.....	8
Whole number of policies in force Dec. 31, 1886.....	220
Largest sum insured in a single risk.....	2,000.00
Rates charged for insurance: Premium note, 5½ per cent for 5 years; cash, ¼ of one per cent.	

BUSINESS OF THE YEAR. — RECEIPTS.

Amount of cash and available securities on hand Jan. 1, 1886.....	\$167.52
Amount of cash premiums received.....	\$3.80
Cash received from all other sources.....	7.41
Amount.....	<u>\$258.73</u>

DISBURSEMENTS.

Amount paid for collecting cash premiums.....	\$24.75
Amount paid for return premiums.....	1.10
Amount paid for officers' salaries, fees, and expenses.....	56.00
Amount paid commissioner.....	5.00

Amount paid for printing, stationery, and postage	\$21.00
Amount paid for borrowed money and interest.....	52.84
Amount paid for office rent, fuel, and express bills	3.45
Amount paid for all other items.....	17.22
Add amount of cash and other securities at end of year 1886.....	77.37
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	\$258.73

SUMMARY OF ASSETS TO BEGIN YEAR, JAN. 1, 1887.

Cash on hand and on deposit in savings banks.....	\$75.00
Amount due on assessments believed to be collectible.....	10.71
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	\$85.71

LIABILITIES DUE AT BEGINNING OF YEAR, JAN. 1, 1887.

Due officers for services and expenses.....	\$8.34
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	\$8.34
Balance for the company.....	\$77.37

NEW HAMPSHIRE MANUFACTURERS' MUTUAL FIRE INSURANCE COMPANY. — CONCORD, N. H.

CHAS. H. AMSDEN, President.

S. C. EASTMAN, Secretary pro tem.

Commenced business March 1, 1886.

ASSETS.

Amount of cash loaned by the company and secured by mortgage of real estate.....	\$5,000.00
Amount of cash actually on hand in the office of the company.....	3.78
Deposited to the credit of the company in the Mechanics' National Bank.....	245.01
Net amount of cash due the company for premiums in course of collection.....	336.52
Interest accrued, but not yet due.....	87.50
Amount of all other assets owned by the company.....	140.00
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Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$5,812.81
Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$43,929.72

LIABILITIES.

Whole amount due, or to become due, for temporary loan.....	\$682.00
Unearned premiums taken <i>pro rata</i> on unexpired time.....	5,851.25
Whole amount of all other demands against the company.....	316.33
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Gross present liabilities of the company.....	\$7,049.58

INCOME.

Net amount of cash premiums received during the year.....	\$15,514.16
Whole amount of cash received during the year for interest, and from all other sources.....	243.59
Gross cash income actually received during the year.....	\$15,757.75
Whole amount of premium notes or policy stipulations liable to assessment.....	\$50,054.34

EXPENDITURES.

Net amount of losses paid during the year.....	\$7,357.12
Whole amount paid during the year for salaries, compensation of officers, clerks, and all other employés of the company.....	2,766.52
Whole amount of all other expenditures during the year.....	588.15
Gross cash expenditures during the year.....	\$10,711.79

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$832,442.00
Net amount in force Dec. 31, 1886.....	728,492.00
Whole amount of premium notes or policy stipulations liable to assessment.....	43,929.72
Whole amount of losses incurred during the year.....	7,357.12

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$822,942.00
Whole amount of premiums received thereon in cash.....	15,307.79
Whole amount of deposit notes received or policy stipulations due thereon.....	43,310.61
Whole amount of losses paid during the year.....	7,357.12

NEW HAMPSHIRE FIRE UNDERWRITERS' ASSOCIATION.—CONCORD, N. H.

LYMAN JACKMAN, President.

THOS. M. LANG, Secretary.

Commenced business March 15, 1886.

ASSETS.

Amount of cash loaned by the company and secured by mortgages of real estate.....	\$2,100.00
New Hampshire Trust Company debentures	2,000.00
Amount of all other cash loans made by the company.....	1,355.00
Amount of cash actually on hand in the office of the company....	175.04
Net amount of cash due the company for premiums in course of collection.....	230.00
Interest accrued, but not yet due.....	91.31
Cash in the Mechanics' National Bank.....	211.65
Cash in the Merrimack County Savings Bank.....	3,040.00

Cash in New Hampshire Savings Bank	\$1,530.00
Cash in hands of treasurer.....	135.42
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment....	\$10,868.42
Amount of premium notes held by the company liable to future assessment for payment of claims.	\$7,779.81
Amount of liability to assessment by reason of policy stipulations for which no deposit note is taken.....	7,779.81
Total.....	\$15,559.62

LIABILITIES.

Whole amount of losses adjusted, but not yet due.....	\$837.94
Whole amount of losses claimed which are disputed or resisted by the company.....	1,000.00
Unearned premiums taken at fifty per cent of actual gross premi- ums received.....	7,664.06
Gross present liabilities of the company.....	\$9,502.00

INCOME.

Net amount of cash premiums received during the year.....	\$16,093.83
Gross cash income actually received during the year.....	\$16,093.83
Whole amount of premium notes or policy stipulations liable to assessment	\$15,559.62

EXPENDITURES.

Net amount of losses paid during the year.....	\$1,493.33
Whole amount paid during the year for commissions on premiums	2,619.28
Whole amount paid during the year for salaries of officers, clerks, and all other employes of the company.....	917.90
Whole amount paid during the year for rents... ..	20.84
Whole amount of all other expenditures during the year.....	480.00
Gross cash expenditures during the year.....	\$5,531.35

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$1,101,179.96
Net amount in force Dec. 31, 1886.....	957,278.29
Whole amount of premium notes or policy stipulations liable to assessment.	15,559.63
Whole amount of losses incurred during the year.....	3,331.27
Whole amount of cash received for insurance of other companies	2,193.19

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$1,071,754.96
Whole amount of premiums received thereon in cash.....	17,015.23
Whole amount of deposit notes received or policy stipulations due thereon.....	17,015.23
Whole amount of losses paid during the year.....	1,493.33
Whole amount of losses incurred during the year.....	2,643.33

PHENIX MUTUAL FIRE INSURANCE COMPANY. — CONCORD, N. H.

LUTHER S. MORRILL, President.

LYMAN JACKMAN, Secretary.

Commenced business Sept. 1, 1886.

ASSETS.

Amount of cash on hand in the office of the company.....	\$12.71
Deposited to the credit of the company in the First National Bank	738.07
In the New Hampshire Savings Bank.....	1,000.00
In the Merrimack County Savings Bank.....	1,000.00
Net amount of cash due the company for premiums in course of collection.....	284.86
	<hr/>
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	\$3,035.64
Amount of premium or deposit notes held by the company liable to future assessment for payment of claims.....	\$2,329.69
Amount of liability to assessment by reason of policy stipulations for which no note is taken.....	2,329.68
	<hr/>
Total	\$4,659.37

LIABILITIES.

Unearned premiums taken at fifty per cent of actual gross premiums received.....	\$2,329.68
	<hr/>
Gross present liabilities of the company.....	\$2,329.68

INCOME.

Net amount of cash premiums received during the year.....	\$4,689.28
	<hr/>
Gross cash income actually received during the year.....	\$4,689.28
Whole amount of premium notes or policy stipulations liable to assessment	\$4,659.37

EXPENDITURES.

Net amount of losses paid during the year.....	\$609.93
Whole amount paid during the year for commissions on premiums	754.61
Whole amount paid for salaries, charges of officers, clerks, and all other employes of the company.....	85.50
Whole amount of all other cash expenditures.....	203.60
	<hr/>
Gross cash expenditures during the year	\$1,653.64

GENERAL ITEMS.

Whole amount of risks written during the year.....	\$322,362.78
Net amount in force Dec. 31, 1886.....	299,212.78
Whole amount of premium notes or policy stipulations liable to assessment	4,659.37
Whole amount of losses incurred during the year.....	609.93
Whole amount of cash received for insurance of other companies	1,160.48

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$319,412.78
Whole amount of premiums received thereon in cash.....	4,838.14
Whole amount of deposit notes received or policy stipulations due thereon.....	4,838.14
Whole amount of losses paid during the year.....	609.93
Whole amount of losses incurred during the year	609.93

NOTE. — It will be noticed that this company has been operating but a few months.

ROCKINGHAM FARMERS' MUTUAL FIRE INSURANCE COMPANY. —
EXETER, N. H.

W. CONNOR, President.

HENRY A. SHUTE, Secretary.

Commenced business June 2, 1833.

Amount of premium notes held by the company on policies now in force	\$199,238.26
Amount of property at risk Dec. 31, 1886.....	3,486,674.00
Amount of losses reported during the year.....	2,229.50
Amount of losses reported during the preceding year.....	6,701.00
Salary of the secretary of the company.....	500.00
Amount paid directors for services	157.90
Last assessment made, Sept. 7, 1885.....	20,920.00
Last preceding assessment made, Oct. 1, 1883.....	14,782.20
Amount collected on last assessment made	20,379.54
Amount collected on last preceding assessment made.....	13,543.94
Number of policies issued during past year.....	500
Amount of cash premiums received on the same.....	1,065.47
Number of policies expired or canceled during the year.....	350
Whole number of policies in force Dec. 31, 1886.....	3,147
Largest sum insured in a single risk.....	2,500.00
Rates charged for insurance: Assessments on notes of 5, 5½, or 6 per cent on amount insured.	

BUSINESS OF THE YEAR. — RECEIPTS.

Amount of cash and available securities on hand Jan. 1, 1886.....	\$701.90
Amount of cash premiums received during the year.....	1,065.47
Amount of cash received on assessments.....	1,191.35
Amount of borrowed money received.....	2,940.00
Amount.....	<u>\$5,898.72</u>

DISBURSEMENTS.

Amount paid for losses during the year 1886.....	\$2,871.70
Amount paid for adjusting losses	157.90
Amount paid for collecting assessments	327.50
Amount paid agents for collecting cash premiums	280.55
Amount paid for officers' salaries.....	500.00
Amount paid commissioner, auditors, and attorneys' fees.....	9.80
Amount paid for printing, stationery, and postage.....	124.17
Amount paid for borrowed money and interest.....	1,133.90

Amount paid for office rent, fuel, and express bills.....	\$70.00
Amount paid for all other items.....	41.29
Add amount of cash on hand at the end of the year 1886.....	381.91
Amount.....	<u>\$5,898.72</u>

SUMMARY OF ASSETS TO BEGIN YEAR, JAN. 1, 1887.

Cash on hand and on deposit in savings and other banks.....	\$381.91
Amount due on assessments believed to be collectible.....	527.39
Amount of cash in hands of agents, reported.....	193.84
Amount.....	<u>\$1,103.14</u>

LIABILITIES DUE AT BEGINNING OF YEAR, JAN. 1, 1887.

Due for borrowed money and interest	\$3,801.60
Amount.....	<u>\$3,801.60</u>
Balance against the company.....	2,698.46

STATE MUTUAL FIRE INSURANCE COMPANY. — CONCORD, N. H.

FRANK A. MCKEAN, President.

OBADIAH MORRILL, Secretary.

Commenced business Oct. 23, 1885.

ASSETS.

Amount of cash loaned by the company and secured by mortgage of real estate	\$6,295.00
Amount of cash loaned by the company and secured by pledge of ten shares of the capital stock of the Granite State Fire Insurance Co.....	1,000.00
Amount of cash actually on hand in the office of the company	17.07
Deposited in the First National Bank of Concord.....	3,292.04
Net amount of cash due the company for premiums in course of collection.....	454.91
Interest accrued, but not yet due.....	<u>82.94</u>
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	<u>\$11,141.96</u>
Amount of premium or deposit notes held by the company liable to future assessment for payment of claims.....	\$875.86
Amount of liability to assessment by reason of policy stipulations for which no note is taken.....	18,795.50
Total	<u>\$19,671.36</u>

LIABILITIES.

Guaranty fund.....	\$3,000.00
Whole amount of losses adjusted, but not yet due.....	392.11

Whole amount of losses claimed which are disputed or resisted by the company	\$300.00
Unearned premiums taken at fifty per cent of actual gross premiums received	4,913.19
Whole amount due, or to become due, for cash premiums returnable as profits or surplus on terminated policies	35.19
Whole amount of all other demands against the company	376.46
Gross present liabilities of the company	<u>\$9,016.95</u>

INCOME.

Net amount of actual cash premiums received during the year....	\$9,388.26
Received for interest and from all other sources	169.14
Gross cash income actually received during the year	<u>\$9,557.40</u>
Whole amount of premium notes or policy stipulations liable to assessment	\$19,194.76

EXPENDITURES.

Net amount of losses paid during the year	\$1,867.39
Whole amount paid during the year for commissions on premiums	1,408.24
Whole amount paid during the year for salaries of officers, clerks, and all other employes of the company	272.41
Whole amount paid during the year for interest on guaranty capital	180.00
Whole amount paid during the year for taxes	5.00
Whole amount of cash premiums returned during the year as profits or surplus on terminated policies	219.95
Whole amount of all other expenditures during the year	368.73
Gross cash expenditures during the year	<u>\$4,321.72</u>

GENERAL ITEMS.

Whole amount of risks written by the company	\$1,019,819.74
Net amount in force Dec. 31, 1886	780,603.17
Whole amount of premium notes or policy stipulations liable to assessment	19,671.36
Whole amount of losses incurred during the year	2,559.50
The percentage of the cash premium returned from Oct. 23, 1886, as profits or surplus is ten per cent.	
Whole amount of cash received for insurance of other companies	31.17

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year	\$745,984.74
Whole amount of premiums received thereon in cash	9,579.81
Whole amount of deposit notes received or policy stipulations due thereon	19,149.62
Whole amount of losses paid during the year	1,867.39
Whole amount of losses incurred during the year	2,559.50

SULLIVAN COUNTY MUTUAL FIRE INSURANCE COMPANY.—NEW-PORT, N. H.

DEXTER RICHARDS, President.

HERBERT S. OSGOOD, Secretary.

Commenced business Nov. 21, 1865.

ASSETS.

Deposited in the First National Bank of Newport.....	\$4,112.11
Net amount of cash due the company for premiums in course of collection....	366.19
Gross present assets of the company, except deposit notes or policy stipulations liable to assessment.....	<u>\$4,478.30</u>
Amount of premium notes held by the company liable to future assessment for payment of claims.....	\$13,101.00

LIABILITIES.

Unearned premiums taken at fifty per cent of actual gross premiums received.....	\$3,435.00
Gross present liabilities of the company.....	<u>\$3,435.00</u>

INCOME.

Net amount of cash premiums received during the year.....	\$6,278.14
Gross cash income actually received during the year.....	<u>\$6,278.14</u>
Whole amount of premium notes or policy stipulations liable to assessment.....	\$13,101.00

EXPENDITURES.

Net amount of losses paid during the year.....	\$936.35
Whole amount paid during the year for commissions on premiums	925.50
Whole amount paid during the year for salaries of officers, clerks, and all other employes	829.44
Whole amount of cash premiums returned during the year as profits or surplus on terminated policies.	90.69
Whole amount paid during the year for rents.....	50.00
Whole amount of all other cash expenditures during the year....	195.93
Gross cash expenditures during the year.....	<u>\$3,027.91</u>

GENERAL ITEMS.

Whole amount of risks written by the company	\$539,034.80
Net amount in force Dec. 31, 1886.....	435,697.00
Whole amount of premium notes or policy stipulations liable to assessment.....	13,695.00
Whole amount of losses incurred during the year.....	936.00

NEW HAMPSHIRE BUSINESS.

Whole amount of risks written during the year.....	\$396,182.00
Whole amount of premiums received thereon in cash.....	6,278.14
Whole amount of deposit notes received or policy stipulations due thereon	13,101.00
Whole amount of losses paid during the year.....	936.35
Whole amount of losses incurred during the year.....	936.35

NEW HAMPSHIRE STOCK FIRE INSURANCE COMPANIES.

AMOSKEAG FIRE INSURANCE COMPANY. — MANCHESTER, N. H.

PERSON C. CHENEY, President.

JAMES E. DODGE, Secretary.

Commenced business June 22, 1886.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$50,000.00
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ASSETS.

Loans on mortgages on which not more than a year's interest is due	\$10,050.00
Interest accrued on mortgage loans.....	123.49
Cash in the company's principal office.....	3,330.56
Cash belonging to the company deposited with New Hampshire Trust Co.....	50,000.00
Gross premiums in course of collection, not more than three months due.....	1,418.20

Gross amount of all the assets of the company	\$64,922.25
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LIABILITIES.

Net amount of unpaid losses to become due.....	\$362.92
Total unearned premiums, computed at fifty per cent of premiums received	9,343.07
Due and accrued for salaries, rent, advertising, and for agency and other miscellaneous expenses	344.78
Due to agents on premiums in course of collection.....	218.00

Total amount of liabilities, except capital stock and net surplus	\$10,268.77
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Joint-stock capital actually paid up in cash.... ..	\$50,000.00
Surplus beyond capital and all other liabilities.....	4,653.48

INSURANCE COMMISSIONER'S REPORT.

INCOME DURING THE YEAR.

Gross premiums on risks written and renewed during the year.....	\$19,271.31
Deduct premiums in course of collection at this date...	1,418.20
Entire premiums collected during the year 1886	\$17,853.11
Deduct re-insurance and return premiums.....	392.00
Net cash actually received for premiums.....	\$17,461.11
Received for interest on mortgages.....	82.00
Interest on deposit in bank, \$1,250, less \$124.33 paid accrued interest on securities bought.....	1,125.67
Income received during the year in cash.....	\$18,668.78

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$943.89
Paid for commissions or brokerage ...	2,527.19
Paid for salaries, fees, clerks, agents, and all other employés... ..	1,171.24
All other payments and expenditures.....	645.90
Aggregate amount of expenditures during the year in cash....	\$5,288.22

MISCELLANEOUS.

Risks.

Written or renewed during the year 1886.....	\$1,707,125.05
Deduct those expired and marked off as terminated... ..	123,702.56
In force at the end of the year 1886.....	\$1,583,422.49
Deduct amount re-insured	2,200.00
Net amount in force Dec. 31, 1886.....	\$1,581,222.49

GENERAL INTERROGATORIES.

Total amount of premiums received from the organization of the company to date.....	\$19,271.31
Total amount of the company's stock owned by the directors at par value	10,600.00
Losses paid from organization to date.....	943.89
Fire losses incurred during the year.....	1,306.81

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written in 1886.....	\$1,707,125.00
Premiums received (gross).....	19,271.31
Losses paid.....	943.89

CAPITOL FIRE ASSOCIATION. — NASHUA, N. H.

FRANK A. MCKEAN, President.

MARK R. BUXTON, Secretary.

Commenced business Feb. 22, 1886.

CAPITAL.

Whole amount of capital actually paid up in cash..... \$50,000.00

ASSETS.

Loans on mortgages on which not more than a year's interest is due \$18,075.00
Interest due or accrued on all said mortgage loans..... 335.77

Account of stocks and bonds of this State and of other States, and
also of all other stocks and bonds owned absolutely by the com-
pany :

	Total Par Value.	Total Market Value.
New Hampshire Trust Co. debenture bonds..	\$10,000.00	\$10,000.00
County of Santa Fe bonds.....	2,760.00	2,760.00
Kansas Investment bonds.....	2,500.00	2,500.00
Muscatine Manf'g and Trust Co. stock, 30 shares.....	3,000.00	3,000.00
Amoskeag Fire Ins. Co. stock, 2 shares..	200.00	200.00
People's " " " 1 "	100.00	100.00
State Mutual " " " 2 "	200.00	200.00
Boston, Concord & Montreal R. R. stock, 25 shares.....	2,500.00	2,625.00
Total par and market values.	\$21,260.00	\$21,385.00
Total market value		\$21,385.00

Collateral Loans.

Note on demand with security, March 1, 1886.....	\$1,500.00
Note on demand with security, March 1, 1886.....	2,000.00
Note on demand with security, March 22, 1886.....	1,500.00
Note on demand with security, July 1, 1886.....	5,000.00
Note on demand with security, Sept. 24, 1886.....	4,000.00
Time note secured by bank-stock, April 1, 1886.....	5,000.00
Demand note, secured by mortgage, July 2, 1886.....	2,000.00
Cash in the company's principal office and deposited in bank.....	5,223.69
Interest due and accrued on stocks not included in "market value"	137.06
Interest due and accrued on collateral loans.....	810.63
Gross premiums in course of collection, not more than three months due.....	2,508.90
Gross amount of all the assets of the company.....	\$69,476.05

LIABILITIES.

Total unearned premiums computed at fifty per cent of premiums received.....	\$13,924.58
Due to agents on premiums in course of collection.....	350.50
Total amount of all liabilities, except capital stock and net surplus.	\$14,275.08

Joint-stock capital actually paid up in cash.....	\$50,000.00
Surplus beyond capital and all other liabilities.....	5,200.97

INCOME DURING THE YEAR.

Gross premiums on risks written and renewed during the year....	\$28,063.23
Deduct premiums in course of collection at this date.....	2,508.90
Entire premiums collected during the year.....	\$25,554.33
Deduct re-insurance and return premiums	4,550.28
Net cash actually received for premiums.....	\$21,004.05
Received for interest on mortgages	\$2,018.33
Income actually received during the year in cash.....	\$23,022.38

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$4,166.38
Paid for commissions or brokerage.....	4,057.19
Paid for salaries, fees, clerks, agents, and all other employés.....	1,600.00
Paid for state taxes in this State.....	500.00
Paid for charter, office furniture, stationery, etc.....	1,902.07
Aggregate expenditures during the year in cash.....	\$12,225.64

MISCELLANEOUS.

Written or renewed during the year 1886.....	\$2,218,663.00
Deduct those expired and marked off as terminated.....	21,470.00
In force at the end of the year.....	\$2,197,163.00
Deduct amount re-insured.....	15,902.00
Net amount in force Dec. 31, 1886.....	\$2,181,262.00

GENERAL INTERROGATORIES.

Total amount of premiums received from the organization of the company to date.....	\$25,554.33
Losses paid from organization to date.....	4,166.38
Total amount of the company's stock owned by the directors at par value	20,100.00
Total amount loaned to officers of the company.....	5,000.00

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire, marine, and inland risks written.....	\$2,197,163.00
Premiums received (gross).....	25,554.33
Losses paid.....	4,166.38
Losses incurred.....	4,166.38

CAPITAL FIRE INSURANCE COMPANY. — CONCORD, N. H.

A. B. THOMPSON, President.

LYMAN JACKMAN, Secretary.

Commenced business March 19, 1886.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$25,000.00
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ASSETS.

Loans on mortgages on which not more than a year's interest is due	\$10,400.00
Interest accrued thereon.....	119.80

Account of stocks and bonds of the United States and of this State and of other States, and also of stocks and bonds of cities in this State, and of all other stocks and bonds owned by the company :

	Total Par Value.	Total Market Value.
Union Pacific R. R. (sinking fund), 8s.....	\$7,000.00	\$8,146.25
Winfield Water Co. (Winfield, Kan.).....	3,000.00	3,000.00
Central Loan and Land Co. debentures, 6s....	2,500.00	2,500.00
Iowa Loan and Trust Co. debentures, 5s.	5,000.00	5,000.00
Johnson Loan and Trust Co. debentures, 6s...	1,000.00	1,000.00
Concord Board of Trade Building stock.....	500.00	465.00
Total par and market values.....	\$19,000.00	\$20,111.25
Total market value carried out.....		\$20,111.25
Cash in company's principal office.....		237.01
Cash belonging to the company deposited in National State Capital Bank, Loan and Trust Savings Bank, Merrimack County Savings Bank, and New Hampshire Savings Bank.....		15,820.18
Interest due and accrued on stocks not included in "market value".....		396.67
Interest due and accrued on savings-bank deposits.....		284.64
Gross premiums in course of collection, not more than three months due.....		1,785.41
Gross amount of all the assets of the company.....		\$49,154.96

LIABILITIES.

Total unearned premiums computed at fifty per cent of premiums received.....	\$15,144.53
Due to agents on premiums in course of collection, and for return premiums	344.30
Total amount of liabilities, except capital stock and net surplus	\$15,488.83
Joint-stock capital actually paid up in cash.....	25,000.00
Surplus beyond capital and all other liabilities.....	8,666.13

INCOME DURING THE YEAR.

Gross premiums on risks written and renewed during the year.....	\$38,726.46
Deduct premiums in course of collection at this date....	1,785.41
Entire premiums collected during the year.....	\$36,941.05
Deduct re-insurance and return premiums....	5,485.74
Net cash actually received for premiums.....	\$31,455.31
Received for interest on mortgages.....	289.55
Received for dividends on stocks and from all other sources.....	433.24
Income actually received during the year in cash.....	\$32,178.10

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$3,741.95
Paid for commissions or brokerage.....	4,440.17
Paid for salaries, fees, clerks, agents, and all other employés, and rents	1,650.00
All other payments and expenditures.....	777.54
Aggregate expenditures during the year in cash.....	\$10,609.66

MISCELLANEOUS.

Risks.

Written or renewed during the year 1886.....	\$3,083,215.76
Deduct those expired and marked off as terminated.....	433,066.33
In force at the end of the year.....	\$2,650,149.43
Deduct amount re-insured.....	271,455.27
Net amount in force Dec. 31, 1886.....	\$2,378,694.16

GENERAL INTERROGATORIES.

Total amount of premiums received from the organization of the company to date.....	\$38,726.46
Losses paid from organization to date.....	3,741.95
Total amount of the company's stock owned by the directors at par value.....	15,100.00

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written.....	\$3,076,215.76
Premiums received (gross).....	38,644.06
Losses paid.....	3,741.95
Losses incurred.....	3,741.95

GRANITE STATE FIRE INSURANCE COMPANY. — PORTSMOUTH, N. H.

FRANK JONES, President.

ALFRED F. HOWARD, Secretary.

Commenced business Nov. 12, 1885.

CAPITAL.

Whole amount of capital actually paid up in cash \$200,000.00

ASSETS.

Loans on mortgages on which not more than a year's interest is due \$9,000.00

Account of stocks and bonds of the United States and of this State
and of other States, and also of stocks and bonds of cities in this
State, and all other stocks and bonds owned:

	Total Par Value.	Total Market Value.
United States registered bonds, 4s, 1907.....	\$158,400.00	\$201,960.00
Carroll County (N. H.) bonds, 6s, 1891.....	200.00	200.00
Fort Plain (N. Y.) Water Co. 1st mortgage bonds, 6s, 1905.....	10,000.00	10,500.00
New Hampshire Trust Co. debenture bonds, 6s, 1906.....	15,000.00	15,000.00
Eastern R. R. of Massachusetts bonds, 6s, 1906	10,000.00	12,700.00
New York & New England R. R. bonds, 7s, 1905	10,000.00	12,500.00
Colorado State warrants, 6s.....	12,078.44	12,078.44
Lake National Bank of Wolfeborough, N. H., 54 shares stock.....	5,400.00	5,670.00
Dover Gas-light Co. of Dover, N. H., 100 shares stock.....	2,500.00	3,000.00
Worcester, Nashua & Rochester R. R., 1 share stock.....	100.00	134.00
Total par and market values.....	\$223,678.44	\$273,742.44
Total market value.....		\$273,742.44
Cash in company's principal office.....		6,153.63
Cash deposited in New Hampshire National Bank, Portsmouth....		25,849.62
Interest due and accrued on stocks not included in "market value"		1,589.17
Gross premiums in course of collection, not more than three months due.....		26,190.17
Gross amount of all the assets of the company.....		\$342,525.03

LIABILITIES.

Gross claims for adjusted and unpaid losses to become due.....	\$15,499.90
Gross losses in process of adjustment, or reported and supposed losses.....	4,005.00
Net amount of unpaid losses.....	\$19,504.90
Total unearned premiums, computed at fifty per cent and <i>pro rata</i>	101,946.69

Due and accrued for salaries, advertising, and other miscellaneous expenses.....	114.69
Due to agents on premiums in course of collection.....	3,954.05
All other demands against the company, absolute and contingent	980.34

Total amount of liabilities, except capital stock and net surplus \$126,500.67

Joint-stock capital actually paid up in cash.....	\$200,000.00
Surplus beyond capital and all other liabilities.....	16,024.36

INCOME DURING THE YEAR.

Net cash actually received for premiums.....	\$163,988.67
Received for interest on mortgages.....	325.00
Received for dividends on stocks and bonds, collateral loans, and from other sources...	8,744.70

Income actually received during the year in cash..... \$178,058.37

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses	\$25,647.95
Paid for commissions or brokerage.....	32,075.59
Paid for salaries, fees, and all other charges of officers, clerks, agents, and all other employes	5,615.20
Paid for state and local taxes in this and other States.....	3,909.41
All other payments and expenditures	7,970.46

Aggregate expenditures during the year in cash \$75,218.61

MISCELLANEOUS.

Risks.

In force on the 31st day of December, 1885.....	\$2,416,830.00
Written or renewed during the year.....	15,320,279.00

Total.....	\$17,737,109.00
Deduct those expired and marked off as terminated.....	4,276,732.00

In force at the end of the year 1886.....	\$13,460,377.00
Deduct amount re-insured.....	263,791.00

Net amount in force Dec. 31, 1886.....\$13,196,586.00

GENERAL INTERROGATORIES.

Premiums received from organization of company to date.....	\$222,328.07
Total amount of company's stock owned by directors at par value	91,900.00
Losses paid from organization to date.....	25,816.70
Fire losses incurred during the year.....	44,985.20

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written during 1886.....	\$7,349,016.00
Premiums received (gross).....	88,850.63
Losses paid.....	11,233.17
Losses incurred.....	14,952.68

GUARANTY INSURANCE COMPANY. — GREAT FALLS, N. H.

ALBERT A. PERKINS, President.

ALMON D. TOLLES, Secretary.

Commenced business March 8, 1886.

CAPITAL.

Whole amount of capital actually paid up in cash	\$20,000.00
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ASSETS.

Account of stocks, bonds, and other investments or securities
owned by the company :

	Total Par Value.	Total Market Value.
Lombard Investment securities, guarant'd 6s	\$10,000.00	\$10,000.00
Water-works bonds (of Colorado Springs)...	10,000.00	10,300.00
Notes on demand	4,500.00	4,500.00
Total par and market values	\$24,500.00	\$24,800.00
Total market value		\$24,800.00
Cash in company's principal office.....		977.05
Cash belonging to the company deposited in Somersworth National Bank and Savings Bank.....		5,998.92
Interest due and accrued on stocks and notes not included in "market value"		579.50
Gross premiums in course of collection, not more than three months due.....		2,323.27
Gross amount of all the assets of the company.....		\$34,678.74

LIABILITIES.

Net amount of unpaid losses to become due.....	\$7.68
Total unearned premiums, computed at fifty per cent of premiums received	8,614.57
Due and accrued for rent, advertising, and other miscellaneous expenses.....	311.86
Due to agents on premiums in course of collection.....	780.83
Total amount of liabilities, except capital stock and net surplus	\$9,714.94
Joint-stock capital actually paid up in cash.....	\$20,000.00
Surplus beyond capital and all other liabilities.....	4,963.80

INCOME DURING THE YEAR.

Gross premiums on risks written and renewed during the year.....	\$18,352.23
Deduct premiums in course of collection at this date....	2,323.27
Entire premiums collected during the year.....	\$16,028.96
Deduct re-insurance and return premiums....	912.34
Net cash actually received for premiums.....	\$15,116.62
Received for interest and dividends and from all other sources....	547.97
Income actually received during the year in cash.....	\$15,664.59

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$1,747.69
Paid for commissions or brokerage.....	2,664.39
Paid for salaries, fees, clerks, agents, and all other employes	591.66
All other payments and expenditures	346.14
Aggregate expenditures during the year in cash	<u>\$5,349.88</u>

MISCELLANEOUS.

Risks.

Written or renewed during the year 1886	\$1,186,992.65
Deduct those expired and marked off as terminated.....	<u>88,896.37</u>
In force at the end of the year.....	\$1,098,096.28
Deduct amount re-insured.....	<u>19,875.00</u>
Net amount in force Dec. 31, 1886.....	<u>\$1,078,221.28</u>

GENERAL INTERROGATORIES.

Total amount of premiums received from the organization of the company to date.....	\$18,352.23
Total amount of the company's stock owned by the directors at par value	8,800.00
Losses paid from organization to date.....	1,735.30
Fire losses incurred during the year	<u>1,735.30</u>

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written in 1886.....	\$1,170,392.65
Premiums received (gross).....	17,992.53
Losses paid.....	1,124.42
Losses incurred.....	<u>1,132.10</u>

MASCOMA FIRE INSURANCE COMPANY.—LEBANON, N. H.

ALBERT M. SHAW, President.

ALPHEUS W. BAKER, Secretary.

Commenced business Dec. 9, 1886.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$25,000.00
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ASSETS.

Loans on mortgages on which less than a year's interest is due....	\$20,561.00
Interest due on all said mortgage loans.....	251.43
Cash belonging to the company deposited in the National Bank of White River Junction.....	4,252.69
Gross premiums collected.....	<u>5,111.99</u>
Gross amount of all the assets of the company.....	<u>30,177.11</u>

LIABILITIES.

Total unearned premiums, computed at fifty per cent of premiums received	\$2,556.00
Due for salaries, rent, advertising, and other miscellaneous expenses	258.36
Due to agents on premiums collected.....	348.93
Liabilities, except capital stock and net surplus.....	<u>\$3,163.29</u>
Joint-stock capital actually paid up in cash.....	\$25,000.00
Surplus beyond capital and all other liabilities.....	2,013.82

INCOME DURING THE YEAR.

Cash actually received for premiums.....	\$5,111.99
Income received during the year in cash	<u>\$5,111.99</u>

EXPENDITURES DURING THE YEAR.

Paid for accrued interest on securities purchased.	\$65.12
Aggregate expenditures in cash.....	<u>\$65.12</u>

MISCELLANEOUS.

Risks.

Risks written during the year 1886.....	\$509,133.55
Deduct those expired during year.....	<u>7,100.00</u>
In force at the end of the year.....	\$502,033.55

GENERAL INTERROGATORIES.

Premiums received from organization of company to date.....	\$5,111.99
Amount of the company's stock owned by the directors at par value	15,100.00

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written in 1886.....	\$509,133.55
Premiums received (gross)...	<u>5,111.99</u>

NEW HAMPSHIRE FIRE INSURANCE COMPANY.—MANCHESTER, N. H.

JAMES A. WESTON, President.

JOHN C. FRENCH, Secretary.

Commenced business in April, 1870.

CAPITAL.

Whole amount of capital actually paid up in cash	\$500,000.00
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ASSETS.

Loans on mortgages on which less than a year's interest is due.... \$198,846.86

Account of stocks and bonds of the United States and of this State and of other States, and also of stocks and bonds of cities in this State, and all other stocks and bonds owned :

<i>Bonds.</i>	Total Par Value.	Total Market Value.
United States Government.....	\$250,000.00	\$317,500.00
Manchester, N. H., city, 6s.....	47,200.00	54,000.00
St. Louis, Mo., city, 6s.....	1,000.00	1,000.00
Chicago, Ill., city, 7s.....	10,000.00	12,000.00
Zanesville, O., city, 8s.....	10,000.00	10,700.00
Marietta, O., city, 8s.....	10,000.00	11,300.00
Concord, N. H., city, 6s.....	1,000.00	1,200.00
Brainerd Water Co., 7s.....	5,000.00	5,500.00
Michigan Air-line R. R., 8s.....	10,000.00	11,000.00
Maine Central R. R., 6s.....	10,000.00	12,000.00
Burlington & Missouri River R.R. (in Iowa), 7s	10,000.00	11,500.00
Chicago, Burlington & Quincy R. R., 7s.....	15,000.00	19,500.00
Chicago, Burlington & Quincy R. R. (Denver Ex.), 4s.....	10,000.00	9,800.00
Jackson, Lansing & Saginaw R. R., 8s.....	10,000.00	11,000.00
New York & New England R. R., 7s.....	10,000.00	12,200.00
New York & New England R. R., 6s.....	10,000.00	11,700.00
Union Pacific R. R., 8s.....	25,000.00	29,500.00
Union Pacific R. R. (Trust), 5s.....	10,000.00	9,300.00
Oregon Short Line R. R., 6s.....	10,000.00	10,600.00
Boston, Concord & Montreal R. R., 6s.....	62,000.00	65,720.00
State of New Hampshire, 6s ..	10,000.00	12,500.00
Hillsborough County, N. H., 6s.....	5,000.00	5,500.00
Chicago & West Michigan R. R., 5s.....	25,000.00	25,000.00
Topeka (Kansas) Water-supply, 6s.....	20,000.00	20,000.00
Minneapolis Gas-light Co., 6s.....	20,000.00	21,000.00
Chicago, Burlington & Northern R. R., 5s.....	5,000.00	5,100.00
New Mexico & Southern Pacific R. R., 7s.....	10,000.00	12,500.00
New Hampshire Trust Co., debenture, 6s.....	10,000.00	10,000.00
<i>Stocks.</i>		
Suncook Valley R. R.....	4,000.00	4,600.00
Merchants' National Bank, Manchester, N. H..	10,000.00	12,500.00
New York Central & Hudson River R. R.	10,000.00	11,200.00
Norwich & Worcester R. R.	3,100.00	5,425.00
Pemigewasset Valley R. R.....	26,000.00	26,000.00
Chicago, Burlington & Quincy R. R.....	44,000.00	59,400.00
Chicago, Burlington & Northern R. R.....	3,000.00	2,400.00
Total par and market values.....	\$731,300.00	\$860,145.00
Total market value.....		\$860,145.00

Account of stocks, bonds, and other securities (except mortgages) hypothecated to the company as collateral security for cash loaned by the company, with the par and market values of the same, and the amount loaned on each :

	Total Par Value.	Total Market Value.	Amount Loaned Thereon.
1 share Amoskeag Manufacturing Co., Manchester, N. H.....	\$1,000.00	\$2,235.00	\$1,562.50
People's Savings Bank-book No. 632, Manchester, N. H.....	2,654.67	2,654.67	3,000.00
300 shares Boston Water-power....		1,350.00	
5 shares Manchester Mills.....	500.00	700.00	
50 shares New York Central & Hud- son River R. R.....	5,000.00	5,600.00	7,200.00
50 shares Lake Shore & Michigan Southern R. R.....	5,000.00	4,900.00	
\$1,200 certificate (Guaranty Savings Bank, Manchester, N. H)....	1,200.00	1,200.00	1,000.00
24 shares New York Central & Hud- son River R. R.....	2,400.00	2,688.00	2,050.00
4 shares Chicago, Burlington & Quincy R. R.....	400.00	540.00	
100 shares Manchester & Lawrence R. R.....	10,000.00	20,300.00	3,500.00
36 shares Pullman Palace Car Co..	3,600.00	5,040.00	3,100.00
25 shares Nashua Card and Glazed- Paper Co.....	2,500.00	3,750.00	2,300.00
8 shares Manchester & Lawrence R. R.....	800.00	1,624.00	2,900.00
2 shares Moline Plow Co.....	2,000.00	3,000.00	
50 shares Chicago, Burlington & Quincy R. R.....	5,000.00	6,750.00	
15 shares Nashua Card and Glazed- Paper Co.....	1,500.00	2,250.00	6,300.00
Total par and market values and amount loaned thereon..	\$43,554.67	\$64,581.67	\$32,912.50
Total amount loaned on collateral security.....			\$32,912.50
Cash in company's principal office.....			6,158.51
Cash belonging to the company deposited in Amoskeag and Mer- chants' National Banks.....			41,765.43
Interest due and accrued on stocks and collateral loans.....			7,995.00
Gross premiums in course of collection, not more than three months due.....			44,040.03
Total assets of the company at their actual value.....			\$1,191,863.33

LIABILITIES.

Gross claims for adjusted losses to become due.....	\$20,422.00
Losses in process of adjustment, or in suspense.....	40,000.00
Losses resisted, including interest, costs, and other ex- penses thereon.....	2,500.00
Net amount of unpaid losses.....	\$62,922.00
Total unearned premiums, computed at fifty per cent and <i>pro rata</i>	382,382.18
All other demands against the company, absolute and contingent	8,800.00
Amount of liabilities, except capital stock and net surplus.....	\$454,104.18

Joint-stock capital actually paid up in cash.	\$500,000.00
Surplus beyond capital and all other liabilities.....	237,759.15

INCOME DURING THE YEAR.

Net cash actually received for premiums.....	\$615,300.28
Received for interest on mortgages.....	10,233.78
Received for dividends on stocks and bonds, collateral loans, and other sources.....	42,493.85
Income actually received during the year in cash.....	<u>\$668,027.91</u>

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses	\$325,589.58
Cash dividends actually paid stockholders	40,000.00
Paid for commissions or brokerage.....	121,902.91
Paid for salaries, charges of officers, clerks, agents, and all other employés	29,102.76
Paid for state and local taxes in this and other States	16,347.00
All other payments and expenditures.....	34,768.98
Aggregate expenditures during 1886 in cash	<u>\$567,711.23</u>

MISCELLANEOUS.

Risks.

In force on the 31st day of December, 1885.....	\$52,676,768.00
Written or renewed during 1886.....	62,042,020.00
Total.....	<u>\$114,718,788.00</u>
Deduct those expired and marked off as terminated.....	52,206,998.00
In force at the end of the year.....	<u>\$62,511,790.00</u>
Deduct amount re-insured.....	2,632,737.00
Net amount in force Dec. 31, 1886.....	<u>\$59,879,053.00</u>

GENERAL INTERROGATORIES.

Premiums received from organization of company to date.....	\$4,464,436.96
Dividends declared since company commenced business.....	364,000.00
Total amount of company's stock owned by directors at par value	154,300.00
Losses paid from organization to date.....	2,316,964.27
Fire losses incurred during the year.....	320,844.88

BUSINESS IN NEW HAMPSHIRE DURING 1886.

Fire risks written during the year	\$10,352,716.00
Premiums received (gross).....	107,651.95
Losses paid.....	33,767.84
Losses incurred. ..	<u>30,893.00</u>

PEOPLE'S FIRE INSURANCE COMPANY. — MANCHESTER, N. H.

JOSEPH C. MOORE, President.

S. B. STEARNS, Secretary.

Commenced business Nov. 17, 1885.

CAPITAL.

Whole amount of capital actually paid up in cash..... \$250,000.00

ASSETS.

Loans on mortgages on which not more than a year's interest is due \$102,925.00

Account of stocks and bonds of the United States and of this State
and of other States, and also of stocks and bonds of cities in this
State, and of all other stocks and bonds owned :

<i>Bonds.</i>	Total Par Value.	Total Market Value.
New Hampshire Trust Co., 6s.....	\$15,000.00	\$15,000.00
James River Valley R. R., guaranteed by Northern Pacific, 6s.....	10,000.00	10,800.00
State of Illinois, drainage, 7s.....	7,000.00	7,000.00
Waubunsee County, Kan., 7s.....	5,000.00	5,550.00
United States Government, 4s.....	156,000.00	199,694.95
Hillsborough County, N. H., 6s.. ..	2,500.00	2,750.00
Total par and market values.....	\$195,500.00	\$240,794.95
Total market value		\$240,794.95

Account of stocks, bonds, and other securities (except mortgages)
hypothecated to the company as collateral security for cash
loaned by the company, with the par and market values of the
same and the amount loaned on each :

	Total Par Value.	Total Market Value.	Amount Loaned Thereon.
Guaranty Savings Bank, Manches- ter, N. H.....	\$3,400.00	\$3,740.00	\$3,200.00
Total par and market values and amount loaned thereon..	\$3,400.00	\$3,740.00	\$3,200.00
Total market value			\$3,200.00
Cash in company's principal office.....			3,439.79
Cash deposited in First National Bank, Manchester.....			26,872.32
Deposits in savings banks :			
Manchester, Manchester, N. H.....			\$2,000.00
People's, " "			2,000.00
Merrimack River, " "			2,000.00
Guaranty, " "			2,000.00
			<hr/> \$8,000.00
Interest accrued on securities.....			2,019.68
Gross premiums in course of collection, not more than three months due.....			<hr/> 18,608.64
Gross amount of all the assets of the company.....			<hr/> \$405,860.38

LIABILITIES.

Gross claims for adjusted and unpaid losses to become due.....	\$11,803.53
Gross losses in process of adjustment, or all reported and supposed losses..	6,550.00
Net amount of unpaid losses.....	\$18,353.53
Total unearned premiums computed at fifty per cent and <i>pro rata</i> ..	113,700.40
Due to agents on premiums in course of collection.....	4,468.04
Total of all liabilities, except capital stock and net surplus.....	\$136,521.97
Joint-stock capital actually paid up in cash.....	250,000.00
Surplus beyond capital and all other liabilities.....	19,338.41

INCOME DURING THE YEAR.

Net cash actually received for premiums.....	\$200,281.50
Received for dividends on stocks and bonds, collateral loans, and from all other sources.....	9,049.82
Income actually received during the year in cash.....	\$209,331.32

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$31,639.04
Paid for commissions or brokerage.....	43,774.22
Paid for salaries, charges of officers, clerks, agents, and all other employés.....	3,999.95
Paid for state and local taxes in this and other States.....	4,136.04
All other payments and expenditures.....	8,134.31
Aggregate expenditures during the year in cash.....	\$91,683.56

MISCELLANEOUS.

Risks.

In force on the 31st day of Dec., 1885.....	\$1,174,703.33
Written or renewed during the year.....	17,810,284.91
Total.....	\$18,984,988.24
Deduct those expired and marked off as terminated.....	3,852,287.25
In force at the end of the year.....	\$15,132,700.99
Deduct amount re-insured.....	240,094.00
Net amount in force Dec. 31, 1886.....	\$14,892,606.99

GENERAL INTERROGATORIES.

Premiums received from the organization of the company to date	\$247,643.21
Losses paid from organization to date.....	32,213.46
Amount of the company's stock owned by the directors at par value.....	80,800.00
Fire losses incurred during the year.....	49,992.57
Amount deposited in various States, which, under the laws thereof, is held <i>exclusively</i> for the protection of the policy-holders of such States:	
In Nebraska	\$25,000.00

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Fire risks written during 1886.....	\$5,574,480.00
Premiums received (gross).....	69,479.48
Losses paid.....	12,066.55
Losses incurred.....	16,931.55

MISCELLANEOUS

INSURANCE COMPANIES OF OTHER STATES

ACCIDENT INSURANCE COMPANY OF NORTH AMERICA. — MONTREAL,
CANADA.

HON. JAMES FERRIER, President. EDWARD RAWLINGS, Manag'g Director.

Commenced business in the United States August, 1881.

ASSETS IN THE UNITED STATES.

	Total Par Value.	Total Market Value.
United States 4½ per cent bonds.....	\$100,000.00	\$111,000.00
Montreal Harbor bonds....	10,000.00	12,300.00
Montreal Harbor bonds.	7,000.00	7,805.00
Total par and market values.....	\$117,000.00	\$131,105.00
Total market value		\$131,105.00
Cash belonging to the company deposited in several banks.....		6,496.35
Interest due and acerued on stocks not included in "market value"		850.00
Gross premiums in course of collection, not more than three months due.....		96,805.21
Mortgage loan.....		5,650.00
All other property of the company		1,070.00
Gross amount of all the assets of the company.....		\$241,976.56

LIABILITIES IN THE UNITED STATES.

Total unearned premiums, computed at fifty per cent of premiums received.....	\$83,564.25
Due and to become due to agents on premiums in course of collec- tion.....	24,201.30
Total amount of all liabilities.....	\$145,075.55

INCOME DURING THE YEAR.

Net cash actually received for premiums in United States.....	\$324,137.08
Received for interest and dividends on stocks and from all other sources.....	5,479.60
Income actually received during the year in cash.....	\$329,616.68

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses in the United States....	\$161,493.06
Paid for commissions or brokerage.....	76,119.93
Paid for salaries, fees, and all other charges of officers, clerks, agents, and all other employes.....	39,649.22
Paid for state and local taxes in this and other States.....	8,681.68
All other payments and expenditures.	32,899.57
Aggregate amount of actual expenditures during the year in cash	\$318,843.46

MISCELLANEOUS.

Risks in force on the 31st day of December, 1885, in the United States.....	\$23,742,000.00
Net amount in force Dec. 31, 1886, in United States.....	22,960,750.00

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Accident risks written	\$87,000.00
Premiums received (gross).....	683.25
Losses paid.....	116.02
Losses incurred.....	116.12

AMERICAN SURETY COMPANY. — NEW YORK CITY.

RICHARD A. ELMER, President.

FREDERICK F. NUGENT, Secretary.

Commenced business April 15, 1884.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$500,000.00
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ASSETS.

Account of stocks and bonds of the United States and of this State
and of other States, and also of stocks and bonds of cities, and of
all other stocks and bonds :

	Total Par Value.	Total Market Value.
United States registered bonds, 4s, 1907.....	\$125,000.00	\$160,000.00
“ “ “ 4½s, 1891.....	175,000.00	194,031.25
“ coupon “ 4½s.....	200,000.00	221,750.00
Total par and market values.....	\$500,000.00	\$575,781.25
Total market value.....		\$575,781.25
Cash in the company's principal office....		801.04
Cash belonging to company deposited in Bank of North America..		28,058.25
Interest due and accrued on stocks not included in “market value”		1,406.25
Gross premiums in course of collection, not more than three months due.....		23,616.94
All other property belonging to the company.....		13,617.62
Gross amount of all the assets of the company.....		\$643,281.35

LIABILITIES.

Net amount of unpaid losses.....	\$19,177.84
Total unearned premiums, computed at fifty per cent of premiums received	72,337.94
Due to agents on premiums in course of collection ..	1,525.09
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Total amount of all liabilities, except capital stock and net surplus.....	\$93,040.87
Joint-stock capital actually paid up in cash.....	\$500,000.00
Surplus beyond capital and all other liabilities.....	50,240.48

INCOME DURING THE YEAR.

Net cash actually received for premiums.....	\$181,936.41
Received for interest and dividends on stocks, bonds, and collateral loans.....	18,678.29
Income received from all other sources.....	6,351.45
<hr/>	
Income actually received during the year in cash.....	\$206,966.15

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses... ..	\$16,705.70
Paid for commissions or brokerage.....	11,527.47
Paid for salaries of officers, clerks, agents, and all other employes	43,485.00
Paid for state and local taxes in this and other States.....	5,800.08
General expenses incurred in conduct of business.....	42,472.61
<hr/>	
Aggregate expenditures during the year in cash	\$119,990.86

MISCELLANEOUS.

Risks in force on the 31st day of December, 1885.....	\$12,458,808.00
Net amount in force Dec. 31, 1886.....	18,752,940.00

GENERAL INTERROGATORIES.

Claims paid from organization to date.....	\$31,664.70
Surety claims incurred during the year.....	32,479.31

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Surety risks written	\$15,000.00
Premiums received (gross).....	112.50

EMPLOYERS' LIABILITY ASSURANCE CORPORATION, LIMITED.—
LONDON, ENGLAND.

LORD CLAUD J. HAMILTON, M. P., Pres. SAMUEL STANLEY BROWN, Sec'y.

Endicott & Macomber, 61 State Street, Boston, Mass., attorneys for United States.

Commenced business in April, 1881.

CAPITAL.

Whole amount of capital actually paid up in cash..... \$500,000.00

ASSETS IN UNITED STATES.

United States bonds, 3s.....	\$100,000.00
Cash in the corporation's principal office at Boston, Mass.....	79.44
Cash belonging to the corporation deposited in the Massachusetts National Bank.....	7,058.14
Interest due and accrued on bonds not included in "market value".....	500.00
Gross premiums in course of collection, not more than three months due.....	3,852.79
Assets of the company in the United States	<u>\$111,490.37</u>

LIABILITIES.

Net amount of unpaid losses.....	\$75.00
Total unearned premiums, computed at fifty per cent of premiums received.....	6,852.24
Due and accrued for salaries, rent, advertising, and for other miscellaneous expenses.....	2,678.11
Total amount of all liabilities, except capital stock and net surplus.....	<u>\$9,605.35</u>

INCOME DURING THE YEAR.

Net cash actually received for premiums on accident risks.....	\$13,848.65
Received for interest and dividends on stocks and bonds, and from other sources.....	1,500.00
Received from home office.....	15,425.50
Income actually received during the year in cash.....	<u>\$30,774.15</u>

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$49.26
Paid for commissions or brokerage.....	3,165.18
Paid for salaries of officers, clerks, agents, and all other employes.....	1,433.38
Paid for state and local taxes in this and other States.....	2,228.79
All other payments and expenditures, including advertising, rents, traveling and other expenses incurred in starting business.....	12,907.17
Expenditures during the year in cash	<u>\$19,783.78</u>

MISCELLANEOUS.

Risks.

Written or renewed during the year 1886.....	\$2,927,898.00
Deduct those expired and marked off as terminated.....	85,500.00
In force at the end of the year 1886.....	\$2,842,398.00

GENERAL INTERROGATORIES.

Losses paid from organization to date.....	\$49.26
Losses incurred during the year.....	49.26

FIDELITY AND CASUALTY COMPANY.—NEW YORK CITY.

WM. M. RICHARDS, President.

JOHN M. CRANE, Secretary.

Commenced business May 1, 1876. Principal office Nos. 214 and 216 Broadway.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$250,000.00
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ASSETS.

Value of the real estate owned by the company.....	\$11,000.00
Loans on mortgages.....	600.00
United States bonds, 3s.....	120,000.00
“ “ “ 4½s.....	93,818.75
“ “ “ 4s.....	19,162.50
N. Y., Lac. & W. R. R. Co. 5 per cent guaranteed stock.....	26,000.00
P., C. & Toledo R. R. first mortgage bonds.....	55,625.00
N. Y., West Shore & Buffalo R. R. 4 per cent mortgage bonds, guaranteed.....	20,575.00
Collateral loans secured.....	118,750.00
Cash in the company's principal office and deposited in various banks.....	21,411.98
Interest due and accrued on collateral loans.....	58.33
Gross premiums in course of collection, not more than three months due.....	65,390.54
All other property belonging to the company.....	24,812.95
Aggregate amount of all the assets of the company...	\$578,105.05

LIABILITIES.

Net amount of unpaid losses.....	\$18,656.37
Total unearned premiums, computed at fifty per cent of all premiums received on fidelity, accident, plate-glass, and steam-boiler insurance.....	253,719.37
Due and accrued for salaries, rent, advertising, and for agency and other miscellaneous expenses.....	2,962.10

Due and to become due to agents on premiums in course of collection	\$17,492.08
Total amount of all liabilities, except capital stock and net surplus	\$292,829.92
Joint-stock capital actually paid up in cash.....	250,000.00
Surplus beyond capital and all other liabilities.....	35,275.13
Liabilities, including paid-up capital stock and net surplus....	\$578,105.05

INCOME DURING THE YEAR.

Gross premiums received on fidelity, accident, plate-glass, and steam-boiler insurance.....	\$520,151.03
Received for interest on bonds and mortgages and collateral loans	17,444.08
Aggregate amount of income actually received during the year in cash.....	\$537,595.11

EXPENDITURES DURING THE YEAR.

Losses paid on fidelity, accident, plate-glass, and steam-boiler insurance.....	\$250,689.93
Cash dividends actually paid to stockholders.....	20,000.00
Paid for commissions or brokerage.....	130,253.36
Paid for salaries, fees, and all other charges of officers, clerks, agents, and all other employés.....	57,058.55
Paid for state, national, and local taxes in this and other States....	7,919.54
All other payments and expenditures.....	61,583.90
Aggregate of actual expenditures during the year.....	\$527,505.28

MISCELLANEOUS.

Risks in force Dec. 31, 1886, fidelity.....	\$21,099,356.43
Risks in force Dec. 31, 1886, accident.....	38,360,328.50
Risks in force Dec. 31, 1886, plate-glass.....	3,430,622.11
Risks in force Dec. 31, 1886, steam-boiler.....	5,381,783.00
Aggregate amount.....	\$68,272,090.04

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR 1886.

Amount of risks.....	\$277,452.40
Premiums received.....	1,628.83
Losses paid.....	758.97

GUARANTY COMPANY OF NORTH AMERICA.—MONTREAL, CANADA.

HON. JAMES FERRIER, President.

JAMES GRANT, Secretary.

Commenced business April, 1872.

EDWARD RAWLINGS, Manager.

CAPITAL.

Whole amount of capital actually paid up in cash..... \$300,000.00

ASSETS.

Value of real estate owned.....	\$368.98
Mortgage loans on which not more than a year's interest is due....	4,887.81
Loan on paid-up policy.....	400.00
Market value of Montreal Corporation bonds.....	16,890.00
“ “ Montreal Corporation stock.....	33,780.00
“ “ Montreal Harbor bonds.....	58,325.00
“ “ Montreal Warehousing bonds	6,985.89
“ “ Victoria (B. C.) Water-works bonds.....	12,800.00
“ “ Dominion of Canada stock.....	399.67
“ “ Lake Champlain and St. Lawrence Junction Rail- way bonds.....	5,250.00
“ “ Canada Central Railway bonds.....	11,193.34
“ “ Province of Quebec bonds	1,120.00
“ “ Canada Southern Railway 2ds.....	18,900.00
“ “ City of Toronto bonds.....	11,450.00
“ “ United States Government 4½ per cent bonds....	237,540.00
“ “ City of Richmond (Va.) bonds.....	1,110.00
Cash in the company's principal office.....	2,108.83
Cash belonging to the company deposited in banks.....	76,655.19
Interest due and accrued on stocks not included in “market value”.....	3,808.48
Gross premiums in course of collection, not more than three months due.....	19,065.77
All other property of the company.....	5,278.04
Gross amount of all the assets of the company.....	\$528,317.00

LIABILITIES.

Net amount of unpaid losses.....	\$24,110.01
Total unearned premiums or reserve fund.....	100,854.87
Due and accrued for salaries, rent, advertising, and other miscel- laneous expenses.....	8,538.37
Due or to become due to agents on premiums in course of collection	953.28
Amount of all liabilities, except capital stock and net surplus..	\$134,456.53
Joint-stock capital actually paid up in cash.....	300,000.00
Surplus beyond capital and all other liabilities.....	93,860.47

INCOME DURING THE YEAR.

Net cash actually received for premiums.....	\$214,085.72
Received for interest on stocks and bonds.....	17,181.54
Income received from all other sources.....	20,891.62
Income actually received during the year in cash.....	\$252,158.88

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$76,291.07
Cash dividends actually paid stockholders.....	18,000.00
Paid for commissions and brokerage.....	7,172.10
Paid for salaries of officers, clerks, agents, and all other employes..	44,400.23
Paid for state, national, and local taxes in this and other States....	4,138.49
Paid for furniture	477.81
All other payments and expenditures.....	45,346.57
Total.....	\$195,826.27

MISCELLANEOUS.

Guaranty risks in force on the 31st day of Dec., 1885.....	\$25,207,650.00
Net amount in force Dec. 31, 1886.....	26,179,325.00

GENERAL INTERROGATORIES.

Losses paid from organization to date.....	\$464,936.92
Losses incurred during the year.....	81,332.43

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Guaranty risks written.....	\$30,000.00
Premiums received (gross).....	280.00

HARTFORD STEAM-BOILER INSPECTION AND INSURANCE COMPANY. —
HARTFORD, CONN.

J. M. ALLEN, President.

J. B. PIERCE, Secretary.

Commenced business in October, 1866.

CAPITAL.

Whole amount of capital actually paid up in cash.....	\$250,000.00
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ASSETS.

Mortgages on which not more than one year's interest is due.....	\$221,800.00
Interest due on all said bond and mortgage loans	4,867.95

Account of stocks and bonds of the United States and of other States, and also of stocks and bonds of cities, and of all other stocks and bonds owned by the company :

Market value of State of Connecticut bonds.....	105,000.00
“ “ United States bonds.....	2,500.00
“ “ Atchison (Kansas) city bonds.....	15,750.00
“ “ Solomon (Kansas) city bonds.....	5,250.00
“ “ Evansville (Indiana) city bonds.....	10,000.00
“ “ Council Bluffs (Iowa) city bonds.....	10,500.00
“ “ Abilene City (Kansas) Board of Education bonds	12,600.00
“ “ Anthony City “ “ “ “	13,125.00

Market value of Madrid (Iowa) school district bonds.....	\$4,200.00
“ “ Kansas school bonds.....	7,583.70
“ “ Nebraska school bonds.....	1,020.00
“ “ Nebraska school bonds.....	13,182.75
“ “ Minnesota school bonds	1,470.00
“ “ Mason and Tazewell District (Illinois) bonds.....	14,388.00
“ “ Peoria (Illinois) township bonds	5,600.00
“ “ Oswego (Kansas) township bonds.....	10,500.00
“ “ Albion (Nebraska) village bonds.....	6,825.00
“ “ Lyon County (Iowa) bonds.....	10,500.00
“ “ Dayton & Western R. R. bonds.....	16,500.00
“ “ St. Johnsbury & Lake Champlain R. R. bonds....	16,500.00
“ “ Mahoning Coal R. R. Co. bonds.....	10,500.00
“ “ Cincinnati, Van Wert & Michigan R. R. Co. bonds	10,500.00
“ “ 40 shares City National Bank stock, Hartford. ..	3,600.00
“ “ 13 “ Hartford National Bank stock, Hartford	2,080.00
“ “ 50 “ Security Company stock, Hartford.....	6,750.00
“ “ 100 “ N. Y., N. H. & H. R. R. Co. stock.....	22,000.00
“ “ 110 “ Chicago, Burl. & Quincy R. R. Co. stock	14,850.00
Cash in company's principal office	1,384.09
Cash belonging to the company deposited in banks.....	47,973.80
Interest due and accrued on stocks not included in “market value”	6,873.10
Gross premiums in course of collection, not more than three months due.....	56,897.00
Gross amount of all the assets of the company	\$693,070.39

LIABILITIES.

Net amount of unpaid losses.....	\$2,850.00
Total unearned premiums or re-insurance fund.....	325,343.41
Due and accrued for rent and other miscellaneous expenses	450.00
Due, or to become due, to agents on premiums in course of collection	2,544.90
Total amount of all liabilities, except capital stock and net surplus.....	\$331,188.31
Joint-stock capital actually paid up in cash	\$250,000.00
Surplus beyond capital and all other liabilities.....	111,882.08

INCOME DURING THE YEAR.

Net cash actually received for premiums and inspections.....	\$435,868.31
Received for interest on mortgages.....	14,909.30
Received for interest and dividends on stocks, bonds, and collateral loans.....	14,120.94
Special mechanical services	3,493.74
Aggregate amount of income actually received during the year in cash.....	\$468,392.29

EXPENDITURES DURING THE YEAR.

Net amount paid during the year for losses.....	\$40,069.68
Cash dividends actually paid stockholders.....	25,000.00
Paid for commissions or brokerage.....	96,986.43

Paid for salaries of officers, clerks, agents, and all other employes	21,358.47
Paid for state and local taxes in this and other States.....	7,277.96
Inspection expenses and apparatus.....	127,626.99
Agency, office, legal expenses, and advertising.....	67,541.95

Aggregate amount of expenditures during the year in cash..... \$385,861.48

MISCELLANEOUS.

Steam-Boiler Risks.

In force on the 31st day of December, 1885.....	\$33,415,396.00
Written or renewed during the year.....	48,191,986.00

Total.....	\$81,607,382.00
Deduct those expired and marked off as terminated.....	35,488,278.00

In force on the 31st day of December, 1886.... \$46,119,104.00

GENERAL INTERROGATORIES.

Total amount received for premiums and inspections from the organization of the company to date.....	\$3,711,338.21
Total amount of cash dividends declared since the company commenced business.....	314,750.00
Total amount of the company's stock owned by the directors at par value.....	59,000.00
Losses paid from organization to date	268,027.29
Steam-boiler losses incurred during the year.....	40,410.93

BUSINESS IN NEW HAMPSHIRE DURING THE YEAR.

Steam-boiler risks written.....	\$686,300.00
Premiums received (gross).....	4,641.21
Received for inspections	1,989.09
Losses paid....	40.25

MUTUAL RELIEF ASSOCIATIONS.

GRANITE STATE MUTUAL AID ASSOCIATION. — KEENE, N. H.

HON. EDWARD GUSTINE, President.

EDWARD A. LYMAN, Secretary.

Commenced business April 3, 1882.

Amount of actual cash assets Dec. 31, 1885..... \$7,025.10

INCOME DURING 1886.

For membership fees.....	\$3,329.00	
For annual, semi-annual, and quarterly dues.....	8,588.50	
For assessments.....	78,249.08	
	<u> </u>	
Total income		90,166.59
Total		<u>\$97,191.69</u>

DISBURSEMENTS DURING 1886.

Cash paid for losses and claims.....	\$81,650.00	
Cash paid to agents in commissions or otherwise.....	4,944.00	
Cash paid for medical examiners' fees.....	1,076.00	
Cash paid for salaries of officers and employés.....	3,789.00	
Cash paid for all other items, viz., printing, stationery, postage, rent, etc.....	2,338.12	
	<u> </u>	
Total disbursements.....		93,797.12
Balance of available funds.....		<u>\$3,394.57</u>

ASSETS DEC. 31, 1886.

Cash deposited in the Keene National Bank	\$3,394.57	
	<u> </u>	
Total amount of cash items.....		\$3,394.57

CONTINGENT ASSETS.

Office furniture and fixtures.....	\$200.00	
Postage stamps and stationery	322.00	
	<u> </u>	
Total		522.00
Aggregate amount of all assets.....		<u>\$3,916.57</u>

CONTINGENT OR OTHER LIABILITIES.

Losses and claims on which no assessment has been made, admitted — 1	\$5,000.00
Losses and claims on which no assessment has been made, resisted — 2.....	5,000.00
	<hr/>
Total ascertained and contingent liabilities.....	\$10,000.00

LOSSES AND CLAIMS PAID DURING THE YEAR ENDING DEC. 31, 1886.

Whole number of losses or payments.....	27
Whole amount paid beneficiaries in 1886.....	\$81,650.00

EXHIBIT OF MEMBERSHIP.

Certificates of membership issued prior to Jan. 1, 1886.....	3,120
Certificates issued during 1886.....	413
Certificates terminated in 1886 — by death, 23; by lapse, 273.....	296
Total amount of certificates written in 1886.....	\$1,301,000.00

PROVIDENT MUTUAL RELIEF ASSOCIATION. — CONCORD, N. H.

HON. B. F. PRESCOTT, President.

ANTHONY C. HARDY, Secretary.

Office, 32 Opera-house. Commenced business Feb. 28, 1877.

ASSETS.

Amount of actual cash assets Jan. 1, 1886.....	\$3,882.19
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INCOME DURING 1886.

For membership fees.....	\$977.75
For semi-annual dues.....	2,798.73
For assessments.....	48,440.06
Received for interest.....	136.12
Miscellaneous	59.80
	<hr/>
Total income.....	\$52,412.46
	<hr/>
Total funds in hand during 1886	\$56,294.65

DISBURSEMENTS DURING 1886.

Cash paid for losses and claims.....	\$48,000.00
Cash paid or allowed in commissions or otherwise.....	896.25
Cash paid for traveling expenses.....	128.92
Cash paid for medical examiners' fees.....	191.31
Cash paid for salaries and other compensation of officers and employes.....	2,291.31
Cash paid for furniture and fixtures.....	48.15

Cash paid for advertising.....	\$4.50	
Cash paid for printing and postage.....	542.87	
Legal services, \$157; rent, \$162; incidentals, \$26.16.....	345.16	
	<hr/>	
Total disbursements.....		\$52,448.47
Balance available.....		3,846.18

ASSETS DEC. 31, 1886.

Cash in principal office, in currency.....	\$102.35	
Cash deposited in the Mechanics' National and Merri- mack County Savings Banks.....	3,743.83	
	<hr/>	
Total amount of cash items.....		\$3,846.18

CONTINGENT ASSETS.

Assessments due and unpaid... ..	\$125.80	
Assessments not yet due.....	3,887.25	
All other property, as follows: furniture, safes, and sup- plies.....	660.00	
	<hr/>	
Total amount.....		\$4,673.05
Aggregate amount of all assets.....		8,519.23

ASCERTAINED LIABILITIES DEC. 31, 1886.

Amount of all adjusted losses and claims not yet due.....	\$4,000.00
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CONTINGENT OR OTHER LIABILITIES.

Losses and claims on which no assessment has been made, resisted	\$2,000.00	
	<hr/>	
Total ascertained and contingent liabilities.....		\$6,000.00

LOSSES AND CLAIMS PAID DURING THE YEAR ENDING 1886.

Whole number of deaths during the year 1886.....	24
Whole amount paid beneficiaries.....	\$48,000.00

EXHIBIT OF MEMBERSHIP.

Certificates of membership issued and in force prior to January, 1886.....	2,554
Certificates issued during 1886.....	347
Terminated in 1886, — by death, 24; by lapse, 56.....	80
Certificates in force Jan. 1, 1887.....	2,821
Semi-annual dues for \$1,000 indemnity.....	\$1.00

PEMIGEWASSET MUTUAL RELIEF ASSOCIATION.—PLYMOUTH, N. H.

MARD N. DAVIS, President.

JOSEPH C. STORY, Secretary.

Commenced business Jan. 1, 1886.

INCOME DURING 1886.

For membership fees	\$762.50	
For annual or semi-annual and quarterly dues	94.00	
Received from all other sources, as follows:		
Gratuity for organization expenses.....	271.10	
Total income.....		<u>\$1,127.60</u>

DISBURSEMENTS DURING 1886.

Cash paid to agents in commissions or otherwise.....	\$552.38	
Cash paid for traveling expenses.....	32.75	
Cash paid or allowed for medical examiners' fees.....	33.25	
Cash paid for salaries of officers and employés.....	50.00	
Cash paid for advertising.....	11.25	
Cash paid for all other items, viz.: rent, postage, printing, and sundries.....	433.46	
Total disbursements.....		<u>\$1,113.09</u>
Balance on hand.....		<u>\$14.51</u>

ASSETS DEC. 31, 1886.

Total cash assets (as per balance above stated).....	\$14.51
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CONTINGENT ASSETS.

Assessment not yet due.....	\$35.90	
Aggregate amount of all assets.....		<u>\$50.41</u>

ASCERTAINED LIABILITIES DEC. 31, 1886.

Amount of all adjusted losses and claims not yet due.....	\$1,000.00
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EXHIBIT OF MEMBERSHIP.

Certificates of membership issued prior to Jan. 1, 1887.....	107	
Certificates terminated in 1886,—by death, 1; by lapse, 5.....	6	
Total certificates in force.....		<u>101</u>
Semi-annual dues for each member.....		\$1.00

INSURANCE STATISTICS.

TABLE I.
Abstracts of Statements of Town Mutual Fire Insurance Companies, made to the Commissioner for the Year 1886.

NAME OF TOWN AND SECRETARY OF COMPANY.	No. of Policies.	Amount of prop- erty at risk.	Am't of premium notes held.	Losses in 1886.	Last assessment, when made.	Amount of assess- ment.	Collected on same.	Standing Dec. 31, 1885, — plus or mi- nus.	Premiums received in 1886.	Received on assess- ments and from other sources.	Total funds in hand during 1886.	Losses paid in 1886.	All other items paid in 1886.	Collectible on as- sessments and from other sources.	Cash on hand Dec. 31, 1886.	Total assets Dec. 31, 1886.	Due on losses and for other claims.	Balance, — plus or minus.
ANTRIM. C. E. Hills.....	65	\$60,750	\$3,645.00	.....	.....	.....	.....	.....	\$109.38	\$48.75	\$158.13	.....	.....	\$94.95	.....	\$63.18	.....	\$63.18
BARNSTEAD. N. S. Nutter.....	171	144,014	8,107.58	\$700.00	1886	\$868.26	\$868.26	—19.87	78.01	868.26	946.27	\$729.00	171.11	.....	.....	46.16	.....	46.16
BEDFORD. S. A. Riddle.....	64	79,100	9,188.00	.....	1878	851.56	851.56	528.74	40.68	21.95	591.37	.....	17.00	.....	.....	574.37	.....	574.37
BOW. H. Colby	97	71,650	3,582.50	.....	1884	600.00	600.00	1.12	8.48	.....	9.60	.....	5.00	.....	.....	4.60	.....	4.60
CANTERBURY. J. G. Clough	131	134,205	7,828.57	.....	1885	524.84	517.79	45.68	35.95	.....	81.63	.....	26.92	\$31.14	23.57	54.71	.....	54.71
CANDIA. M. F. Emerson....	104	63,730	3,983.35	.....	1882	182.64	182.64	45.33	10.05	.....	55.38	.....	24.30	.....	.....	31.08	.....	31.08
DUNBARTON. N. T. Safford.....	47	39,700	2,103.00	.....	1882	272.50	272.50	—3.79	16.42	11.84	28.26	.....	20.41	.....	7.85	7.85	\$5.00	2.85

INSURANCE COMMISSIONER'S REPORT.

[illegible]

LIFE INSURANCE.

The following tables are compiled from the annual statements, to December 31, 1886, of the several life insurance companies transacting business in New Hampshire, and filed in the office of the Insurance Commissioner :

TABLE II.

shows the capital stock ; total assets claimed ; amount of items ruled out ; total assets admitted ; reserve and other liabilities, excluding capital ; surplus as regards policy-holders ; and total income and expenditures in the year 1886. Items ruled out are miscellaneous and are frequently good for the full amount, but do not properly come under either heading used.

TABLE III.

shows the itemized assets of the life insurance companies doing business in this State in 1886, as made up to the end of that year.

TABLE IV.

shows the itemized disbursements of the life insurance companies operating in this State in 1886, as reported to the end of that year.

TABLE V.

relates to the New Hampshire business of the several life insurance companies during the year 1886, showing the number of policies issued during the year, and the number and amount of policies in force in the State, also the amount of premiums collected and claims paid in the State during that year.

TABLE II.

Compiled from the Annual Statements of Life Insurance Companies transacting business in New Hampshire during the year 1886, and made up to the end of that year.

NAME OF COMPANY AND LOCATION.	Paid-up capital.	Total assets claimed by the company.	Deduct assets not admitted.	Total admitted assets.	Reserve and other liabilities, excluding capital.	Surplus as re- gards policy- holders.	Total income in 1886.	Total expendi- tures in 1886.
Etna Life, Hartford, Conn.....	\$1,000,000	\$31,489,626.58	\$25,638.76	\$31,463,987.82	\$25,952,468.62	\$5,511,519.20	\$4,639,630.76	\$3,687,044.92
Connecticut Mutual, Hartford....	Mutual.	55,702,493.94	6,276.43	55,696,217.51	50,460,250.54	50,433,974.11	7,425,006.62	6,206,268.90
Connecticut General, Hartford....	150,000	1,597,923.20	.....	1,597,923.20	1,204,515.60	393,407.60	269,275.61	197,648.30
Equitable Assurance Soc., N.Y....	100,000	75,154,517.76	821,545.11	74,332,972.65	59,077,289.00	15,255,683.65	19,873,733.19	11,764,986.74
John Hancock M., Boston, Mass....	Mutual.	2,878,793.86	3,242.99	2,875,550.87	2,616,410.31	259,140.56	984,567.09	852,704.90
Manhattan Life, N. Y. City.....	100,000	11,310,057.78	.....	11,310,057.78	9,665,822.43	1,644,235.35	1,072,650.02	1,550,168.43
Mass. Mutual, Springfield, Mass....	Mutual.	8,554,065.32	6,099.90	8,547,965.42	7,903,767.96	644,197.46	1,736,686.49	1,357,745.15
Metropolitan, N. Y. City.....	500,000	3,705,970.61	.....	3,705,970.61	2,663,974.58	1,041,996.03	4,333,333.57	3,633,333.31
Mutual Life, N. Y. City.....	Mutual.	113,808,939.78	188,978.00	113,679,961.78	106,494,156.09	7,185,805.69	21,137,176.67	16,283,086.47
Mutual Benefit, Newark, N.J.....	Mutual.	40,826,264.15	9,747.63	40,816,516.52	37,622,763.21	3,190,753.31	6,702,987.02	5,647,946.33
National Life, Montpelier, Vt.....	Mutual.	3,897,722.10	62,475.01	3,835,247.09	3,221,510.60	619,961.49	912,354.94	514,236.57
New England Mutual, Boston....	Mutual.	18,627,081.25	.....	18,627,081.25	15,951,875.37	2,675,205.88	3,153,885.54	2,493,649.95
New York Life, N. Y. City.....	Mutual.	75,083,832.71	161,905.31	74,921,927.40	63,238,901.87	11,683,025.53	18,831,757.83	10,810,207.41
Northwestern Mut., Milwaukee....	Mutual.	26,609,878.38	21,803.84	26,619,674.54	22,470,697.31	4,429,181.07	5,870,737.07	3,576,506.70
Penn Mutual, Philadelphia.....	Mutual.	11,422,615.61	26,191.24	11,396,424.37	9,767,310.60	1,629,113.77	2,708,794.54	1,757,542.04
Phoenix Mutual, Hartford, Conn....	100,000	10,488,599.72	.....	10,488,599.72	9,577,416.66	1,111,189.06	1,295,581.06	1,251,998.03
Provident Savings, N. Y. City....	100,000	319,552.30	28,173.16	291,379.14	.....	.....	657,457.49	370,371.66
State Mut. Life, Worcester, Mass....	Mutual.	4,186,241.20	.....	4,186,241.20	3,428,539.00	757,702.20	987,879.46	653,446.42
Travelers, Hartford, Conn.....	600,000	9,585,303.55	473,713.87	9,111,589.68	6,960,941.01	2,150,648.67	3,475,922.07	2,581,346.31
United States Life, N. Y. City....	440,000	5,633,137.83	32,747.14	5,600,390.69	4,925,882.79	674,507.90	968,048.41	841,664.90
Union Mutual, Portland, Me.....	Mutual.	6,124,716.82	4,801.46	6,119,915.36	5,749,694.84	375,021.98	940,896.67	900,679.93
Vermont Life, Burlington, Vt.....	100,000	314,890.76	2,539.00	312,351.76	217,231.00	95,120.76	66,342.35	53,461.27
Washington Life.....	125,000	8,269,613.60	38,483.89	8,231,129.71	7,754,497.97	476,631.74	1,915,816.51	1,496,730.79

TABLE III.

Showing the Itemized Assets claimed by the Life Insurance Companies doing business in New Hampshire in 1886, taken from Annual Statements made up to December 31 of that year, and filed with the Insurance Commissioner.

NAME OF COMPANY.	Cost of real estate owned by the company.	Loans on mortgages.	Loans on collateral security.	Loans to policy-holders secured by assignment of policy.	Premium notes held on policies in force.	Cost value of bonds and other securities.	Cash in office and deposited in banks.	Interest due and accrued on securities and premium notes, and value of stocks over cost.	Net uncollected and deferred premiums due.	Bills receivable, agents' balances, commissions, etc.
Etna Life	431,434.56	15,431,188.35	711,157.31	285,563.62	1,617,914.79	8,202,600.30	3,580,274.05	1,035,041.66	168,912.58	25,638.76
Connecticut Mut.	10,311,817.86	29,445,320.17	383,933.00	.....	2,237,210.24	10,250,650.00	1,413,982.12	1,552,476.02	78,828.10	6,276.43
Connecticut Gen'l.	209,286.46	961,498.88	4,000.00	.....	79,452.84	232,428.33	28,164.73	46,450.77	28,987.85	.....
Equitable.....	16,428,225.32	19,881,470.94	1,392,606.00	7,210.00	.....	25,817,022.86	5,835,390.07	3,534,439.46	1,423,818.00	821,545.11
John Hancock	33,844.61	1,473,650.00	22,300.00	49,257.00	115,176.51	974,195.91	67,210.94	98,392.43	41,131.97	3,634.49
Manhattan.....	778,113.37	3,456,795.15	3,426,762.50	.....	1,057,745.73	1,901,932.98	195,970.71	328,834.31	163,903.03	.....
Massachusetts Mut.	1,638,162.05	1,933,132.69	489,165.96	228,300.00	528,436.42	3,404,425.07	246,114.88	452,344.96	227,883.99	6,099.90
Metropolitan	340,374.38	1,504,300.00	70,000.00	8,500.00	142,610.83	1,413,584.07	38,646.34	94,576.40	93,378.59	.....
Mutual Life.....	10,591,286.32	50,118,949.66	6,172,917.25	.....	.....	35,341,400.00	2,306,203.08	7,897,111.65	1,252,083.82	188,978.00
Mutual Benefit.....	1,776,169.05	19,848,923.39	2,091,500.00	543,350.79	4,247,228.49	9,713,402.73	792,043.63	1,424,133.26	301,015.06	94,497.75
National (Vt.).....	211,670.68	1,504,201.64	53,500.00	129,528.74	26,765.01	1,639,603.82	106,230.07	61,997.97	71,747.26	62,475.00
New England.....	1,442,690.65	3,634,170.00	802,336.25	7,400.00	1,047,927.63	9,959,002.57	380,931.87	1,791,161.05	161,361.13	.....
New York Life.....	6,839,974.22	15,228,775.00	4,450,000.00	.....	408,619.44	33,222,443.99	3,033,395.13	4,588,326.99	1,350,482.63	161,905.31
Northwestern.....	1,569,316.91	21,123,758.27	.....	.....	1,056,378.95	550,325.00	1,363,579.64	458,342.38	496,373.39	21,803.84
Penn Mutual.....	841,606.39	3,006,456.99	393,900.00	231,947.00	628,081.18	5,365,465.25	183,149.97	523,874.14	219,573.60	28,560.09
Phoenix Mutual.....	1,174,732.45	6,425,608.49	25,000.00	.....	1,163,869.33	1,086,907.00	332,486.97	242,821.17	37,174.31	.....
Provident Savings.....	.....	80,500.00	.....	175.00	563.55	155,268.75	39,809.82	1,707.43	14,703.34	28,173.16
State Mutual.....	58,000.00	696,104.00	59,200.00	107,465.00	86,266.44	2,870,542.45	88,663.31	220,000.00	.....	.....
Travelers.....	1,247,803.25	3,483,446.85	342,295.75	63,129.40	.....	3,897,107.58	577,582.87	83,419.52	182,015.11	473,713.87
United States.....	63,004.24	2,507,349.53	71,708.46	148,646.59	.....	2,362,882.54	62,287.01	260,606.63	123,845.69	32,747.14
Union Mutual.....	1,624,402.24	987,688.88	152,650.39	.....	603,684.66	2,378,212.58	108,226.01	161,609.54	98,162.99	14,875.36
Vermont Life.....	17,100.33	196,515.00	10,000.00	1,366.00	2,336.61	45,952.50	14,002.50	15,713.49	9,365.33	2,539.00
Washington Life.....	430,216.57	6,377,398.67	5,000.00	165,197.29	.....	659,703.42	137,631.52	244,345.51	211,636.73	38,483.89

TABLE IV.

Itemized Disbursements of Life Insurance Companies doing business in New Hampshire during the year 1886, as shown by the Annual Statements filed with the Insurance Commissioner, made up to December 31 of that year.

NAME OF COMPANY.	Cash paid for death losses, additions, endowments, and annuities, including prem. nots used for same.	Cash paid for surrendered policies.	Premium Notes used in purchase and vol. ed by lapse.	Cash surrender values and re-conversions applied to pay premiums.	Cash dividends paid to policy-holders, and dividends in payment of premiums.	Premium notes or loans used to pay dividends to policy-holders.	Cash paid stock-holders for interest or dividends.	Cash paid to agents and the various officers for services and expenses.	Cash paid for taxes and license fees.	Cash paid for advertising, rent, and other miscellaneous expenses.
Etna Life	\$2,072,538.32	\$93,904.66	\$41,355.81	\$217,305.81	\$440,008.40	\$112,911.94	\$100,000.00	\$450,109.53	\$83,385.19	\$75,525.26
Connecticut Mutual	3,513,021.84	81,308.93	49,207.18	452,270.98	145,032.87	44,078.84	.....	394,650.03	321,916.21	294,702.02
Connecticut General	107,378.73	4,840.30	2,309.95	10,112.95	6,001.91	1,353.49	12,000.00	42,078.79	4,459.54	7,112.64
Equitable	5,444,339.30	1,033,093.79	.....	.....	.....	1,859,258.81	7,000.00	2,023,356.18	169,400.17	1,928,022.49
John Hancock	375,230.83	21,181.43	1,128.47	1,871.68	44,531.63	7,190.43	.....	332,995.91	13,056.00	57,517.92
Manhattan	801,095.89	124,602.10	39,981.19	.....	214,622.42	7,265.54	40,000.00	234,046.65	31,332.92	57,221.74
Massachusetts Mut.	638,902.00	84,255.36	21,798.38	9,313.71	145,621.57	58,979.15	.....	273,704.18	25,004.93	98,105.87
Metropolitan	1,582,842.39	55,095.61	8,967.89	.....	27,010.76	3,644.83	35,000.00	1,363,450.92	35,616.74	521,710.17
Mutual Life	7,214,680.27	3,215,180.23	.....	.....	2,699,243.24	.....	.....	2,279,237.07	277,169.85	547,575.81
Mutual Benefit	2,937,453.30	214,226.79	138,084.02	218,886.16	1,158,127.30	22,071.14	.....	625,233.03	152,329.16	181,535.43
National, Vermont	187,657.40	75,311.66	2,188.73	.....	71,645.23	166.24	.....	140,354.36	14,313.27	23,199.68
New England	1,292,558.00	180,518.44	48,217.99	.....	421,408.72	28,810.45	.....	260,858.54	39,529.18	221,688.64
New York Life	4,237,873.37	1,315,117.91	.....	.....	2,072,043.52	2,135.29	.....	787,703.54	129,947.45	711,673.58
Northwestern	1,344,182.06	232,099.11	16,813.80	.....	820,903.92	.....	.....	2,341,350.29	79,402.25	295,402.02
Penn Mutual	693,563.00	165,271.56	8,275.74	.....	343,738.14	62,276.84	.....	366,615.64	52,676.99	69,025.93
Phoenix	705,056.23	91,245.95	34,659.91	6,336.08	123,885.28	2,590.14	24,000.00	142,835.73	28,452.83	32,885.88
Provident Savings	203,218.00	7,346.53	.....	.....	200,284.73	.....	6,325.00	105,663.74	4,853.62	42,670.02
State Mutual	328,920.34	39,787.11	.....	.....	.....	.....	.....	142,851.62	12,708.28	10,061.92
Travelers'	1,258,787.69	58,256.85	.....	.....	.....	.....	84,000.00	914,823.32	38,951.34	226,526.91
United Mutual	452,584.85	73,783.07	.....	.....	42,326.43	.....	30,800.00	207,829.96	14,403.47	62,263.55
Union Mutual	544,297.29	19,558.70	32,528.00	27,128.21	42,326.43	15,827.00	.....	205,415.46	13,991.10	59,607.64
Vermont Life	22,383.93	6,694.25	68.45	277.16	2,616.09	.....	3,000.00	13,667.44	1,259.69	3,494.26
Washington Life	675,749.39	285,022.99	1,503.86	.....	149,107.00	.....	8,590.75	203,849.34	15,121.53	157,785.93

TABLE V.

Compiled from Annual Statements of Life Insurance Companies doing business in New Hampshire, made up to December 31, 1886, and filed with the Insurance Commissioner, showing the number and amount of policies of the several companies in New Hampshire at that date, also the business transactions of the year 1886.

NAME OF COMPANY.		BUSINESS IN NEW HAMPSHIRE, YEAR 1886.					
		No. and amount of policies in force in this State Dec. 31, 1886.	No. of policies.	No. of policies.	No. of policies.	Policies paid, lapsed or terminated in 1886.	Total premiums received in 1886.
		Amount of policies.	No. of policies.	Amount of policies.	No. of policies.	Amount of policies.	Losses incurred and annuities falling due.
		No. of policies.	Amount of policies.	No. of policies.	Amount of policies.	No. of policies.	Amount of losses, annuities, and endowments, paid in 1886.
Aetna Life.....	874	\$830,563	59	\$97,510	50	\$45,778	\$25,326.87
Connecticut Mutual.....	617	1,417,563	24	41,129	22	43,650	27,073.92
Connecticut General.....	63	77,442	72	96,500	25	29,060	4,161.89
Equitable.....	332	810,508	54	155,710	37	93,702	12,480.31
John Hancock.....	48	62,810	3	3,500	10	5,997	1,255.31
Manhattan.....	82	128,524	1	2,000	7	11,350	3,776.63
Massachusetts Mutual.....	1,396	2,403,499	135	263,200	90	164,841	83,634.45
Metropolitan.....	9*	5,000	2	2,000	.....	.....	16,824.42
Mutual Life.....	797	1,481,614	120	200,000	11	32,984	63,881.21
Mutual Benefit.....	304	542,265	19	27,700	22	44,536	12,105.23
National Vermont.....	79	129,650	99	117,000	11	23,550	4,347.31
New England.....	246	452,112	1	1,000	8	11,040	3,129.75
New York Life.....	298	740,055	20	46,270	34	77,405	21,575.90
Northwestern.....	130	239,602	53	89,200	22	60,436	8,660.67
Penn Mutual.....	23	124,500	28	43,500	.....	.....	10,882.31
Phoenix.....	574	643,320	165	208,480	96	104,504	27,208.42
State Mutual.....	93	155,220	5	5,000	9	17,165	4,184.37
Travelers'.....	1,263	2,068,898	2,384	3,052,250	1,469	2,293,640	35,845.38
United States.....	94	82,515	13	13,000	16	20,170	2,209.99
Union Mutual.....	224	246,244	72	106,843	64	89,291	7,605.41
Vermont Life.....	33	33,269	8	6,500	3	2,369	1,413.95
Washington Life.....	13	39,600	4	6,055	1	4,000	1,454.42
Totals.....	7,605	\$12,694,803	3,341	\$4,534,356	2,015	\$3,175,388	\$379,037.55
							\$307,860.29

* Industrial policies 6,060.

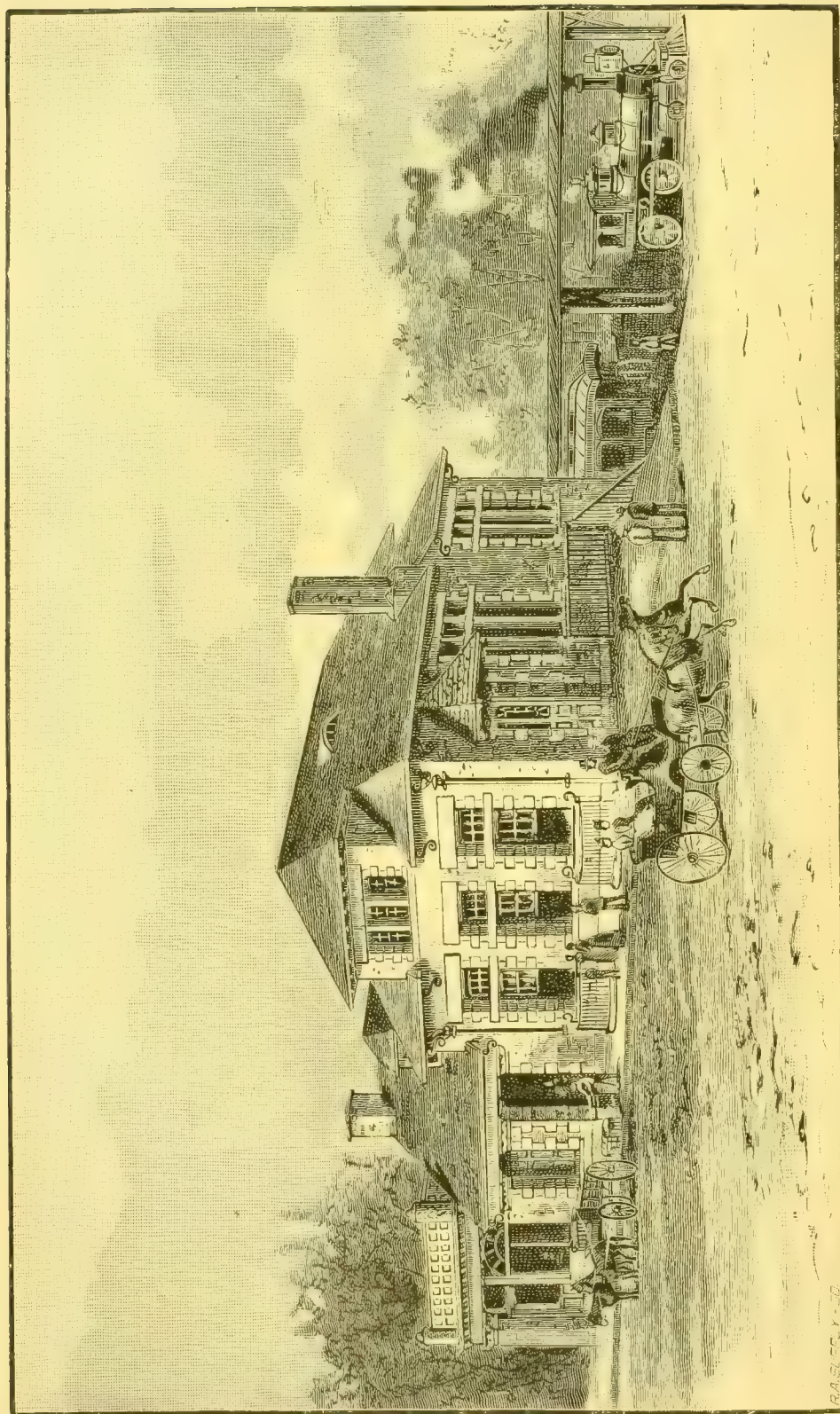
† Life and accident policies.

BUSINESS OF NEW HAMPSHIRE FIRE INSURANCE COMPANIES IN
THIS STATE DURING THE YEAR 1886.

NAME OF COMPANY.	Risks written in 1886.	Premiums re- ceived in 1886.	Losses paid in 1886.
Amoskeag Fire, Manchester	\$1,707,125	\$19,271.31	\$943.89
Capitol Fire Association, Nashua	2,197,163	25,554.33	4,166.38
Capital Fire, Concord	3,076,215	38,644.06	3,741.95
Granite State Fire, Portsmouth	7,349,016	88,850.63	11,233.17
Guarantee Fire, Great Falls	1,170,392	17,992.53	1,124.42
Mascoma Fire, Lebanon	509,133	5,111.99	.....
New Hampshire Fire, Manchester	10,352,716	107,651.95	33,767.84
People's Fire, Manchester	5,574,480	69,479.48	12,066.55
Totals	\$31,936,240	\$372,556.28	\$67,044.20
STATE MUTUALS.			
Ætna Mutual, Concord	\$45,442	\$8,478.20	\$982.39
Belknap County Mutual, Tilton	197,305	3,461.36	864.03
Cheshire County Mutual, Keene	1,231,417	15,469.52	6,195.85
Concord Mutual, Concord	1,110,865	15,516.12	1,586.34
Dover Mutual, Dover	520,677	8,540.09	1,421.76
Exeter Mutual, Exeter	438,848	6,759.58	2,711.53
Home Manufacturers and Traders' Mu- tual, Concord	1,293,726	25,440.14	6,986.01
Indian Head Mutual, Nashua	563,047	7,321.96	1,039.87
Manufacturers and Merchants' Mutual, Concord	2,005,955	36,971.98	6,632.43
New Hampshire Manufacturers' Mutual, Concord	822,942	15,307.79	7,357.12
New Hampshire Fire Underwriters' Mu- tual, Concord	1,717,754	17,015.23	1,493.33
Phoenix Mutual, Concord	319,412	4,838.14	609.93
State Mutual, Concord	745,984	9,579.81	1,867.39
Sullivan County Mutual, Newport	396,182	6,278.14	936.35
	\$11,818,540	\$180,978.06	\$40,684.33
Mutuals that take only a nominal pre- mium with amount at risk given.			
Merrimack County Mutual, Webster	\$224,980	\$83.80	
Rockingham Farmers' Mutual, Exeter	3,486,674	1,065.47	\$2,229.50
	\$3,711,654	\$1,149.27	\$2,229.50
Twenty-one town mutuals	\$2,609,924	\$1,240.74	\$2,071.98
Grand totals	\$50,076,358	\$555,924.35	\$112,030.01

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BOSTON & MAINE R. R. PASSENGER STATION AT GREAT FALLS.
ERECTED 1886.

FORTY-THIRD ANNUAL REPORT

OF THE

RAILROAD COMMISSIONERS

OF THE

STATE OF NEW HAMPSHIRE,

1887.

MANCHESTER, N. H.:

JOHN B. CLARKE, PUBLIC PRINTER.

1887.

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RAILROAD MAP
NEW HAMPSHIRE
ACCOMPANYING REPORT OF THE
RAILROAD COMMISSIONERS
1887

SCALE OF MILES

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PART I.

COMMISSIONERS' REPORT.

STATE OF NEW HAMPSHIRE.

To the Legislature :

The Board of Railroad Commissioners respectfully submits its forty-third annual report, it being the fourth under the act of 1883.

Its purpose is to comply with the law and furnish facts in regard to the railroads of New Hampshire and the work of the railroad commission.

IN GENERAL.

This can fairly be said of the railroads of New Hampshire : Their value, which depends upon their capacity to earn dividends, and is represented by the market value of their securities, is greater than ever before. Their physical condition is better than ever before. Their rolling stock has been greatly increased, and is more serviceable. They are doing more business, and are operated with greater regularity, speed, and safety, and with more regard to the convenience of the public.

NOTE. — The returns of railroad corporations and the comments thereon are for the year ending September 30, 1886.

A change in the chairmanship of the Board occurred October 1.

The record of complaints and decisions having been brought, in the report for 1886, published in September last, down to May 17 of that year, that which appears in this volume covers but ten months.

Most of the railroad histories begun in previous reports have been rewritten in order to make necessary additions and corrections, and it is hoped they will now be found so complete and reliable that they may hereafter be omitted.

COST OF NEW HAMPSHIRE RAILROADS.

The original cost of the railroads of New Hampshire cannot be given. The amounts stated in the reports of the different corporations are the sums at which the roads are valued upon their books, and are unreliable so far as furnishing information as to the expense of building and equipping them is concerned. In some cases they include the first cost of construction and equipment; in others, these items and the expense of a long series of improvements and large ventures in other properties; in others they are only the sums paid at trustees' sales, or those upon which interest is guaranteed, or the total of the outstanding stock and bonds. In one or two instances they are but fractions of the amounts invested; and in others they refer to expenditures almost entirely in other States. But by sifting and analyzing these reports, and gathering such data as are obtainable elsewhere, we secure the material for a close estimate of the cost of constructing and furnishing the several roads in this State up to the time when they could fairly be said to be finished, which was about \$35,000,000. Of this amount, about \$9,000,000 has never paid any dividends, and most of it has been irrecoverably lost in the reorganizations and transfers which have followed the bankruptcy of the corporations that constructed the roads. The Central, Contoocook Valley, Concord & Claremont, Sullivan, Concord & Portsmouth, Manchester & Keene, Nashua & Acton, Dover & Winnepesaukee, Peterborough & Shirley, Ashuelot, and Portland & Ogdensburg, have all been through bankruptcy, and the original stockholders of the Great Falls & Conway, Boston, Concord & Montreal, and Cheshire are still waiting for interest upon investments made long ago. The total cost of all the roads making returns to this Board, as it appears upon the books of the corporations, is \$65,120,232.64. Of this, fully one half represents

expenditures in other States, and the cost of the railroad property in this State, in its present condition, to the owners, is about \$32,500,000. The capital stock of all the corporations reporting is \$45,691,742.74; the funded debt, \$25,075,100; and the floating indebtedness, \$8,261,882.10; a total liability of \$79,028,724.84.

THE COMPLEXITY OF RAILROAD REPORTS.

The total standard-gauge steam railroad mileage of this State is 1,025 miles. All of this except about 63 miles is included in the Connecticut River, Cheshire, Concord, Boston & Lowell, Boston & Maine, and Grand Trunk systems.

Each of these systems is practically one road. No one of them is wholly in New Hampshire. All but one traverse parts of three States. Their accounts, so far as they relate to earnings and expenses, can be strictly reliable only when each system is treated as a unit; for the apportionment of aggregates among the several component corporations must be, to some extent, arbitrary, and an accurate division according to state lines is not possible; but conclusions which are approximately correct, and which answer practical purposes, at least for comparison, may be reached by considering each system as entirely our own, and each important road that is mostly in this State as an independent line, whose accounts and reports are in no way affected by its family relations.

THE ADVANCE IN RAILROAD SECURITIES.

The following table shows the price, discarding fractions, of New Hampshire railroad stocks in the Boston market since 1878, the quotations given being the lowest for the years named except the last, which is for February 21 of this year. It includes all our state roads that are bought and sold in that market, the others being leased properties whose dividends are fixed and whose securities

are in most instances owned in large blocks and seldom change hands.

TABLE SHOWING THE APPRECIATION OF NEW HAMPSHIRE RAILROAD STOCKS IN EIGHT YEARS.

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	Feb. 21, 1887.	Advance since 1879.	Advance since 1883.
Boston & Lowell.....	\$58	\$85	\$100	\$98	\$89	\$97	\$100	\$150	\$92	\$61
Nashua & Lowell.....	91	110	140	145	141	145	146	160	69	19
Bost'n, Con. & Mon.(p'd)	75	85	95	107	99	62	87	103	28	4
Northern.....	82	84	90	104	108	110	112	128	46	20
Pemigewasset .....	.....	.....	.....	.....	100	89	95	104	.....	4
Boston & Maine.....	108	119	145	139	148	145	166	217	109	69
Eastern.....	10	24	31	30	35	29	43	131	121	96
Eastern (N. H.).....	57	78	85	89	88	84	88	110	53	22
Nashua & Rochester*....	45	45	53	53	53	.....	.....	.....	.....	.....
Portsmouth & Dover.....	.....	.....	.....	106	106	106	109	112	.....	6
Ports., Gt. Falls & Conway	5	12	17	16	20	16	33	116	111	96
Worc., Nashua & Rochester	23	48	57	55	57	56	65	141	118	84
Concord	75	82	96	97	97	99	102	120	45	23
Manchester & Lawrence..	133	140	156	160	161	162	172	205	72	44
Cheshire (pref'd).....	24	45	57	58	58	55	52	118	94	60
Connecticut River	133	138	157	157	162	160	165	194	61	32

* Consolidated.

Taken together, the stocks that have been continually listed since 1878 have more than doubled since that time, the average value of \$100 shares in each being \$73 then and \$155 now, an average gain of \$82.

The advance has carried every stock on the list above par, and three of them to more than twice their par value, while in 1879 only four sold for their face value.

The aggregate appreciation on all the stock of the fifteen roads named is almost \$27,000,000.

This appreciation is, except in one or two cases, in no way due to stock-board manipulation, but to increased confidence in prospective dividends, the resultant of a large increase of business and consolidations which promise large reductions in the percentage of expenses to gross earnings.

EARNINGS AND EXPENSES.

The gross receipts of the steam railroads reporting to this office for 1885 were as follows:

From passenger department	\$7,954,851 56
From freight department	8,482,236 98
Rents for use of roads	1,042,710 12
From other sources	509,341 44
Total	<u>\$17,989,140 10</u>

The gross expenses of the corporations reporting to this office for 1885 were as follows:

Operating expenses and taxes	\$11,692,167 07
Rents paid	2,533,798 97
Total	<u>\$14,225,966 04</u>
Net income	\$3,763,174 06

The gross receipts of the same roads in 1886 were:

From passenger department	\$8,640,119 63
From freight department	9,291,533 56
Rents for use of roads	1,676,162 15
From other sources	673,475 85
Total	<u>\$20,281,291 19</u>

The gross expenses, including taxes and rents, were \$15,778,383.57; and the gross net income \$4,502,907.62. This is an increase of \$2,292,151.09 in receipts, and of \$739,733.56 in net income. The gain in receipts is 12.75 per cent and in net income nearly 20 per cent over the preceding year.

In this connection it is interesting to note that the increase in the earnings of the 76 roads taken by "Bradstreet" as representatives of the railroad business of the

whole country was but 6.2 per cent, and of the different sectional groups into which these roads are classified as follows: Granger roads 2.7 per cent; Central Western roads 10.4 per cent; Eastern roads 12 per cent; Southern roads 3.1 per cent; Southwestern roads 11.4 per cent; far Western roads 8.8 per cent.

DIVIDENDS.

Twenty-six of the thirty-four steam railway corporations making returns to this Board paid \$2,206,903.47 in dividends to stockholders, — the rate ranging from 2 to 10 per cent, an average of 5.9 per cent. In addition to this, the Atlantic & St. Lawrence stockholders received 6 per cent from the rental paid by the Grand Trunk.

RAILROAD MILEAGE.

There has been no increase in the steam railroad mileage of this State since 1882, when it reached in even miles 1,042, one set of returns making it 1,042.82 and another 1,041.32. The main lines are 968 miles and a fraction and the branches 73 miles in length.

There are 66.03 miles of doubled track, the same as last year. The sidings measure 202.94 miles, an increase of 5.70 over last year. Computed as single track, there are 1,310.29 miles.

ACCIDENTS.

Twenty-eight persons were killed upon the railroads in this State during the year ending September 30, 1886, and forty-one others were injured, some of them seriously. The only accident in which more than one person was killed was the head collision at Andover Center, October 18, 1885, in which three trainmen lost their lives and five others were injured. No passenger has been killed in a car in this State for several years.

Since October 1 this Board has investigated twelve accidents, resulting in the death of as many persons, making the number forty during the last eighteen months. The following classifications refer to this period. Of the forty killed, fourteen were railroad employés. Four of these fell and one jumped from moving trains, three were victims in collisions, one was coupling cars, one fell from a bridge, one was killed by a derailment, and three were walking on the track. Of the twenty-six not in railroad employ, one committed suicide, three were driving over crossings, four jumped from moving trains, two attempted to board trains in motion, one fell from a train, one was crawling under a train, and twelve were trespassers upon the track. Thus, it appears that forty-five per cent of all the casualties to persons not in railroad service were caused by the use of the track as a highway. This is a larger proportion than in other years or in other States, but this cause of fatalities is everywhere one of the principal ones.

There seems to be some infatuation which leads citizens of the United States to exercise an assumed but highly prized right to jeopardize their lives, whenever they have occasion to journey on foot between two points connected by a railroad and a highway, by always walking upon the track; and there are many sections of railroads over which hundreds of pedestrians pass every day. While this continues,—and there is no way to prevent it in the present state of public opinion,—accidents will occur in spite of the greatest vigilance and care on the part of trainmen.

TIES, RAILS, WATER, AND FUEL.

The question of supplying railroads with ties is fast becoming a serious one. Nearly 3,500,000 ties are in use in this State, and as their average life is not over seven

years, their renewal requires about 500,000 per year, and of these a large proportion are brought from other States and the British possessions; for the chestnut forests, from which come the standard tie, have nearly disappeared, and the supply of hemlock and oak is fast being exhausted. To such an extent has this lack of ties already made itself felt that the substitution of iron or steel for wooden track supports is one of the pressing problems in railroading, and several patterns of steel and iron are being tested with a promise of proving satisfactory.

On nearly all our roads there is a lack of water at stations for engines and drinking and sanitary purposes. No station at which there is much business can be said to be well furnished without an unfailing supply of drinking water, and no one can be kept entirely wholesome without water-closet arrangements, by which bowls and vaults can be frequently flushed or otherwise washed out.

Steel rails such as formerly cost \$150 a ton can now be had for \$40, and old iron rails sell for \$32, so that the difference in cost between a new steel track and an old iron one is but \$8 per ton and the expense of relaying. Under these conditions iron rails are rapidly going out of use, and steel is taking their places, greatly to the advantage of all parties. The tendency is also towards much heavier steel rails than were formerly deemed sufficient, and those weighing 56 and 65 pounds to the yard are being steadily transferred from the main lines to branches to make room for 72 and 80 pound patterns.

Even when they run through sections where wood is worth little upon the stump, railroads are rapidly substituting coal for wood as fuel for locomotives. All the locomotives on the Boston & Maine, Cheshire, and Connecticut River systems burn coal. On the Concord there are but 14 wood-burners out of 44; on the White Mountain division of the Boston & Lowell but 16 out of 36; and on the Northern division of that system but 9 out of 27.

GRADE-CROSSINGS.

There are 675 grade-crossings in the State. Every one of these is a public enemy, and should be got rid of as soon as possible, whenever it can be done at a reasonable cost. Several States have attempted to rescue coming generations from the dangers incident to grade-crossings by inaugurating a long series of eliminations, the cost of which is apportioned between the railroads and the towns through which they run, and this may be successful in thickly settled and rich commonwealths, where the evil is proportionately much greater and the cost of its abatement much less than here, but in New Hampshire we can scarcely expect to do this, and outside of our cities and large villages grade-crossings are in the nature of necessary evils. It is estimated that it would cost to raise the railroads above or sink them below all the highways and farm paths which they now cross at grade, a sum equal to their total capital stock. This is too much to ask the roads or the public to pay, even though it be distributed through a series of years so long that the work will be finished only when the descendant of the prolific foreigner has taken the place of the last thoroughbred and barren Yankee, who has been run down and killed; and however much there is to support the theory that it would have been better to have prohibited crossings at grade when the roads were chartered, and that no new ones should be permitted, we may as well accept the fact that most of those we have are here to stay. Forty grade-crossings are now protected by gates or flagmen, an increase of seven over last year. This is the best plan that now offers to lessen the danger in the larger towns, and these gates must be multiplied as fast as is practicable. We may hope, too, that inventive genius will soon produce an automatic or electric gate that will effectually close a roadway upon the approach of every train, and be

so simple and comparatively cheap that it can be used at every crossing. Something can be done to prevent crossing accidents by clearing away the bushes and other obstructions within the boundaries of the highways and railroads which now, in many places, prevent travelers from seeing or hearing an engine as it nears a crossing until it is too late; and still more by the exercise of such care as all who desire to live are bound to take in the face of known danger. The uniform warning sign prescribed by the Board last year is coming into general use, and no instance of neglect of trainmen to obey the law relating to whistling and ringing the bell has come to our knowledge.

FREIGHT-CAR COUPLERS.

Frequent accidents to railroad employés while coupling freight cars continue to emphasize the need of an automatic coupler, and to illustrate the fact that of the thousands that have been patented and are being subjected to the tests of use in business, not one justifies the claims of its inventors. Railroad managers and trainmen differ widely as to the comparative merits of the many in the market, but they are generally agreed that all are faulty. The Massachusetts Commission has approved five, and builders are restricted to these in building or repairing cars in that State. Of these five, most of the roads operating lines in this State have adopted the United States, but it provokes criticism rather than praise. There has been similar experience in other States, and we believe we are warranted in saying that with several thousand patents to select from there is as yet not one that meets the requirements. There are many that would work well if all cars were equipped with them, but the one that will work satisfactorily with all others in use is yet to be invented.

CAR HEATING AND LIGHTING.

The worst accident in the history of New England rail-roading occurred on the 5th of February last, to a train composed in part of cars that had just traversed half the length of this State and crossed the line into Vermont. Here thirty-four persons met death in its most horrible forms, and nearly as many more were badly injured. The primary cause of the catastrophe was the breaking of a rail, which derailed the rear car, and when it reached the bridge it was approaching hurled it and three others upon the frozen river forty feet below. But it is certain that the burning of the wreck which immediately followed the fall, the cars and their contents being set on fire by the stoves and lamps used for heating and lighting the cars, added greatly to the loss of life and the sufferings of the victims. These stoves and lamps were of approved designs and make, immensely superior on the score of health and comfort to the primitive patterns in use upon many of the cars in this State, and the terrible experience with them, which is but one in a long series of similar horrors, is a demonstration that no device or arrangement for heating and lighting passenger coaches by carrying fuel and oil in them is safe; that no stove is so strongly made, so securely closed, and so firmly fastened in its place that in collisions and other accidents it will not fire the wreck, and doom imprisoned passengers to the agonies of being burned alive. This has long been the opinion of those best qualified to judge, and it has now been firmly established in the minds of the people. The universal earnest demand of the traveling public, appalled by awful disasters, and shrinking from the fate of the victims, is for some plan or invention which shall supersede the car-heaters and lamps, whose glow has come to be more suggestive of torture and death than safety and comfort.

The obstacles in the way of such a deliverance are

many, but they are rapidly being overcome. The cars of the elevated railways in New York are satisfactorily and economically heated by steam from the engines. The Connecticut River road has for several years used a device for heating by locomotive steam, supplemented in case of need by that from a boiler under each car. The Boston & Albany has, during the past winter, warmed some of its cars from the engine, and since the Vermont holocaust many other roads have been testing similar devices. The success attending these experiments has been such that it is believed to have demonstrated the feasibility of steam heating from the locomotive, and to have shown that on ordinary trains it is not only the safest but the cheapest method. It remains to perfect the machinery, and perhaps to provide auxiliaries for use when trains are so long, grades so heavy, and the cold so intense that an engine cannot furnish both motive power and heat; but it seems evident that we are very near to a satisfactory solution of the question of heating passenger coaches without carrying live coals in them.

This Board has been asked by inventors to recommend several systems of heating, or the patented machinery thereof, and by passengers to prohibit the further use of stoves in cars in this State, but has not seen its way clear to take the initiative in so important a matter at present. It is very doubtful whether this State has the constitutional right to interfere in any way with cars employed in interstate traffic, as most of the cars in this State are. There is also to be considered the necessity that the system of heating upon through trains should be uniform, and situated as we are, with the terminals of our roads nearly all in other States, we are almost compelled to wait upon the motion of those States or of Congress, even if it be assumed that a law or an order prohibiting here what they permit would be valid. As to cars engaged in state traffic, we must act decisively whenever the experiments

now being conducted by practical railroad men have shown us what we want and how to get it. The car of the future will be heated by steam and lighted by electricity or gas made outside, and neither the conservatism or the false economy of railroad managers must be permitted to stand in the way of its speedy adoption.

WHISTLING.

The whistling of locomotives is a subject that has occupied the attention of the commissioners in other States for years, and has lately been forced upon us by the complaints and petitions of prominent citizens of Nashua, Concord, and Manchester, who have prayed to be relieved of what they regard as an unnecessary and intolerable nuisance. It is one in which comparatively few people are interested, but to those few it is of vital importance. Human ingenuity has never produced a sound more shrill and startling than a steam whistle. It can be heard under favorable conditions ten or twelve miles, and at short range it penetrates all ordinary obstructions without loss of force or ferocity. When often repeated and long continued, it becomes to the sick, and to the well of sensitive nerves who live near it, an excruciating and destroying torture. The law of 1885 provides —

“SECT. 4. When a locomotive approaches within eighty rods of a crossing over a highway at grade, the whistle shall be sounded by two long and two short whistles, and the bell shall be rung until the locomotive passes the crossing; *provided*, that no whistle need be sounded in cities and villages where upon petition and complaint the board of railroad commissioners shall decide that it is not necessary.”

This law has been zealously respected by all our engineers, and has doubled the whistling in the State. In some of our cities where crossings are numerous and close to many houses it has greatly aggravated what

was before a serious trouble. On one of the three lines in Nashua there are seventeen grade-crossings, calling for sixty-eight blasts of the whistle by every locomotive, including "shifters," that passes from one side of the city to the other. In Manchester there are nine grade-crossings within a short distance in the compact part of the city on the Portsmouth road. These call for one hundred and forty-four blasts by the four engines that run regularly over that road between the hours of 4 and 9 A. M. In Concord many of the best residences are located close to the tracks on which the thirty trains of the Northern, the Concord & Claremont, and the Boston, Concord & Montreal enter and leave the depot daily, and over which run three grade-crossings that call for an almost continual shriek. So much is compulsory. Add to this what may be called voluntary whistling, which serves to signal the arrival and departure of trains, to call trainmen to duty at the start, and notify wives and sweethearts of their safe return and readiness for supper at the finish, and consider that a blast is measured only by the guess, the caprice, or the endurance of an engineer, and it is easy to understand the intense feeling against this noise among its victims. But it is not easy to see to what extent it may be abated without jeopardizing the public for whose protection the law was intended. It is argued by those who have given the subject careful investigation that whistling causes, by frightening horses, more accidents than it prevents, that the indirect loss of life and health and the injury to property caused by it are very great and further, that inasmuch as people in general pay little heed to noise to which they are accustomed, its constant use greatly impairs its value as a warning.

On the other hand, the public has been educated to a belief that the whistle is essential to its protection, and the great majority who live remote from crossings,

or are so constituted that it is to their ears a pleasant melody or a gratifying evidence of life and movement in their vicinity, see no good reason why it should be discontinued.

In dealing with this question the Board has been inclined to go to the very verge of safety in affording relief to the sufferers, but has endeavored to stop short of inviting an increase of crossing accidents, which are numerous enough at best.

STREET RAILWAYS.

The Nashua street railway was opened for business in the spring of 1886, and its return covering six months is printed elsewhere. The road is two miles in length. An extension of the Manchester horse railway from Elm street to Hallsville, a distance of a mile, was opened in the fall of 1885. The gain in street railway mileage is thus three miles, the other roads remaining the same. The earnings of the Manchester, Concord, Dover (nine months), and Laconia & Lake Village roads in 1885 were \$47,801.24, and the operating expenses \$42,208.28, leaving a net income of \$5,593.96. In 1886 the earnings were \$62,450.13, and the expenses \$57,964.68, a net income of \$4,485.45. This is a gain of \$14,648.89 in gross earnings, and a decrease of \$1,108.51 in net income. These roads carried 881,600 passengers in 1885, and 1,105,888 last year.

INSPECTIONS.

The Board has since its last report inspected every mile of railroad in this State, including road-beds, tracks, bridges, culverts, and stations. This work involved twenty-five hundred miles of travel, and occupied the time from October 3 to November 16. We were accompanied over their respective lines by General Manager Furber,

Superintendents Merritt, Sanborn, and Howard, and the roadmasters, of the Boston & Maine; Superintendents Todd, Stowell, and Simons, Bridgemaster Hazeltine, the master mechanic, and the roadmasters, of the Boston & Lowell; President Sulloway of the Northern; President Smyth, Superintendent Chamberlin, and the roadmasters, of the Concord; General Manager Stewart, Master Mechanic Perry, and the roadmasters, of the Cheshire; Superintendent Mulligan and the roadmasters of the Connecticut River; Superintendent Adams and several assistants of the Fitchburg; Receiver Anderson and the bridgemaster and roadmaster of the Portland & Ogdensburg; Superintendent Hay, Engineer Lloyd, and the roadmasters, of the Grand Trunk; and Superintendent Perkins and the roadmaster of the Whitefield & Jefferson. These inspections enabled us to note a generally improved condition of nearly all the roads, and to suggest such additional betterments as could reasonably be demanded last year, most of which have been secured. We shall ask for much more upon some of the upper roads whenever it is determined whether those now operating them are legally in possession. A detailed report of the permanent improvements upon each system and its physical condition last fall appears elsewhere under the head "Railroad History and Condition."

COMPLAINTS AND HEARINGS.

Much of the work of the Board has been of a mediatorial character. Most complaints come to us informally and often confidentially. For some reason, either because they think it would be useless or impolitic, many people hesitate to apply to superintendents and directors for a redress of grievances in railroad affairs, but they readily avail themselves of an agent that the State has provided which has power to enforce its requests, and not infre-

quently their complaints result in a correction of the evil complained of without any investigation or order; for in minor matters, at least, the public and the railroad managements are not so far apart in their conception of what is right as is generally supposed, and the suggestion of the Board that complaint has been made, which for the first time directs superintendents' attention to the existence of the grievance, is promptly followed by its correction. It has been the policy of the Board to adjust all that was possible without formal hearings, and these have seldom been required except in cases where the law expressly provides for them, and a record of the finding is necessary. We have been afforded by the railroad officials every facility for conducting our investigations, and in every instance they have readily complied with our orders. A transcript of the records of the clerk, showing the finding in each case that has been formally determined, accompanies this report.

SPECIAL RATES.

Because many people buy railroad tickets where one pays a freight bill, the public measures the liberality of any railroad management more by its passenger rates and train service than by its freight tariff and accommodations, but the material prosperity of this State is much more dependent upon the facilities for shipping merchandise, and the charges for doing it, than upon what helps to make journeying cheap and easy. Every cut in fares is not a gain to the community. All our railroad lines except the Grand Trunk have their southern terminals in Massachusetts. All New Hampshire roads lead to Boston, and the growing tendency of the time is to make them channels through which much of the business that formerly engaged our men and money, and which legitimately belongs here, is poured into another commonwealth. To such an extent is this true that the cream of the retail

trade in many important lines goes from New Hampshire to Boston, carrying with it the profits of dealers, and leaving behind unemployed merchants and capital, without profiting purchasers in a pecuniary way.

There were sold in the year 1886 at Manchester 20,068 single-trip tickets to Boston, and at Concord 10,754, a total of 30,822 in these two cities, which do not embrace a sixth of the population of the State. As this does not include mileage and season tickets, which are generally used by business men and all who travel regularly or much, and as neither of these cities is a place from which many summer visitors go to Boston, it is not unreasonable to assume that nearly this number of trips were made by persons who went to that city to trade. These people put more than \$100,000 into the railroad treasuries, left probably \$20,000 with Boston landlords, and \$500,000 or more with Boston merchants, all of which was at the expense of Manchester and Concord. The "half fare," which intensifies this condition, is not an unmixed benefit. It is popular, and swells the receipts of the roads, but it does not protect home enterprise. But a reduction of a dollar in a freight bill is always the saving of a dollar to the State. It leaves the farmer a dollar more for his potatoes, hay, or beef. It gives the manufacturer a dollar more for his product. It cheapens a dollar the coal and groceries bought with the mechanic's wages. It is not a matter of vital importance that the people of New Hampshire should travel as much or more than they do, but the existence and prosperity of most of our industries depend upon freight rates and facilities. We can scarcely hope to retain what we have, much less to secure new ones, without a freight service which will largely discount the distance that divides us from the seacoast and commercial centers. Our water-powers are not the important factors they once were. Nearly one fourth of the motive power used in New Hampshire manufac-

tories is steam, and this ratio is steadily increasing, while some of the best water-privileges remain unoccupied. The location of a manufactory is now determined more by the cost of getting supplies to it, and goods from it, than by the water-power offered it; and in every manufacturing village, coal for heating, the cost of which depends largely upon freight, is the necessary auxiliary of the water-wheel. Hon. Edward Atkinson, the most eminent authority in this country upon the subject, says of the value of water-power:

“ The larger and more costly of the water-powers which have been developed in New England and the Middle States during the last forty years, with a view to the sale of water-power and land connected therewith, have proved to possess no market value whatever.

“ The writer, having been connected as an officer with several of these companies, may be considered a good witness. The water-power of Lowell was the first one of the large powers developed upon New England rivers. The great profits of the company were made, first, in its machine-shop, in building machinery for the factories constructed in Lowell by substantially the same persons who owned the water-power; second, by charging these factories a very much higher rate per mill-power than would now be thought of or has since been attempted. The factories then constructed, with a few built since, have bought out the water-power company, and now own the power in connection with the factories. Nearly every one, if not every one, has been obliged to add a very large auxiliary steam-engine. Such is also the case on almost all the other streams, not so much because there has been a change in the rain-fall, but because the draining of the meadows and the cutting off the wood have rendered all the rivers of New England much more variable than they used to be. The corporation which owns the water-power at Manchester has been a very successful one, but the greater part of its profits has been made in its factories, and its land and water-powers, taken as a separate investment, have never paid six per cent at simple interest upon their cost.

“ The great water-powers at Holyoke, at Lewiston, at Indian Orchard, on the Chicopee River, on the Mohawk River, on the Kennebec at Augusta, were all sold to pay their debts, with a dead loss of the original capital.

“ The writer happens to have been connected as the financial mana-

ger with the water-power company on the Kennebec River in Maine, after it had been sold out; with the Cohoes Water-power Company, on the Mohawk River, before it was sold; with the Lewiston Water-power Company at the time it was sold; and with the Indian Orchard Water-power Company subsequently to the sale, — each possessing land and water-power for sale, — and during the long period of his connection with these companies there never was a single application made by any person for the purchase or lease of a spoonful of water, except on the part of companies which were themselves promoted by the owners of the water-power for the purpose of attempting to develop the land connected therewith. It would, perhaps, be worth while to look into the present condition of the water-power at Augusta, Ga., and at Columbia, S. C.

“It may be said that water-power has never paid for its development on a large scale, and there is now less incentive to develop it, since steam power has become so cheap, than at the time when these enterprises were begun. If the factories which now exist at several of these places were now to be built, it is very certain that they would not be placed where they are, but at some intermediate point between the great commercial cities, where they could be operated by steam, reached at less expense for freight, and more readily supervised by the managers.

“It is not denied that water-power upon the small streams, where dams and canals can be built at moderate expense, is an extremely valuable adjunct to the factories placed thereby, and that water is essential, aside from power, in the manufacture of woollen goods and of paper; but it may nevertheless be said that water-power, developed for the purpose of its power only, is to-day practically without salable value in any degree approaching the cost of dams, canals, etc., if the expense be anything more than the excavation of a canal in easy ground, and the developing of very simple and inexpensive works connected therewith.”

One of the leading manufacturers of the State has expressed the opinion that no water-power sixty miles from the sea-board is worth taking the gift of, for the manufacture of any kind of material brought from outside the State, the freight charges on raw material, other supplies, and product for that distance being more than enough to balance any advantage which water-power has over steam with coal at tide-water prices. This may be

doubted, but it will not be contended by any one that the value of an inland water-power is such that it can, in these days of sharp competition and close margins, be profitably utilized without cheap and prompt railroad service, or that high freights are not prohibitory of the many manufactures in which motive power is but a small item in the expense account.

Again, the natural attractions of our State as a summer resort can only be made to contribute as they should to our material progress by the erection of large and costly hotels and boarding-houses, and these are scarcely to be had unless owners, while erecting them and establishing a reputation for them, receive substantial encouragement from the railroads in the way of concessions on freight bills.

The logical conclusion from this is that the province of a New Hampshire railroad is creative as well as executive, and that its discriminations, if any, should be in freights in favor of those who establish the enterprises to which it must look for support. But it is otherwise written in our statutes. Chapter 163, sections 2 and 5, of the General Laws provides :

“SECT. 2. The rates shall be the same for all persons and for like descriptions of freight between the same points; such prices shall not be raised until after thirty days' notice posted as aforesaid. All persons shall have reasonable and equal terms, facilities, and accommodations for the transportation of themselves, their agents and servants, and of any merchandise and other property, upon any railroad owned or operated in this State, and for the use of the depot and other buildings and grounds of such corporation, and, at any point of intersection of two railroads, reasonable and equal terms and facilities of interchange.”

“SECT. 5. Season tickets, by the quarter or other specified time, may be sold at reduced rates; and special rates may be established for passengers to attend agricultural fairs, public meetings, and parties of pleasure, and for military and other organized companies.”

In this prohibition of discriminations, the exceptions,

so far as it relates to passengers, are so broad and so many that it has little practical application to fares; but there is no exception in regard to freights. A railroad may carry people to a horse trot, a circus, or a muster for half fare or a merely nominal fare and be blameless, but if it induces a man to establish a factory, a shop, or a hotel in Northern New Hampshire by giving him less freight rates than are paid by others in the same locality, it violates the law and is liable to a fine of \$500. It may legally sell a man a mileage ticket for two thirds the regular rate that will take him out of the State to buy shoes, but if it contracts to carry shoes for him from the State, on condition that he will make them in Concord, for two thirds the rate charged for carrying the same description of freight from the state line to Concord, only public opinion and the remissness of public officials save it from punishment. This, too, in a State that is committed by law and custom to the policy of exempting from taxation and otherwise encouraging new enterprises that will add to its wealth and population.

Is it too much to say that some of our railroads and very many of our mountain villages owe their existence to a violation of this law, or that it has been constantly broken by universal consent? If not, why not amend it, at least to the extent of adopting the qualification of the Interstate Commerce Act of Congress, which provides for equal terms and facilities under substantially similar circumstances and conditions?

With maximum freights fixed by a state commission, with publicity of all rates provided for, and with discriminations for or against patrons similarly situated strictly prohibited, unless there is need of protecting stockholders from the disposition of railroad managers to serve the public too cheaply, we do not conceive it to be necessary to make it a misdemeanor for a railroad

corporation to coax business upon its line by offering it special inducements to locate there.

Rates should be equal under similar circumstances and conditions, and they should be public; but an iron-clad law intended to make them equal regardless of circumstances and conditions, while it may be warranted by general principles that are sound, is not in line with the policy adopted by New Hampshire in other matters, and experience has shown that it cannot be enforced.

INTERSTATE COMMERCE.

The Interstate Commerce Act passed by the Forty-ninth Congress has an important bearing upon the railroad business of this State and the work of this Board. It asserts the right and purpose of the National Legislature to regulate interstate railway traffic. It defines an interstate railroad and creates a national commerce commission. It prohibits pooling and rebates, and provides that rates for the transportation of persons and property shall be equal under substantially similar circumstances and conditions, and not less for a long than for a short haul over the same line in the same direction. Under the definition given in this act, all but one of our standard-gauge railways are interstate, each of them being part of a system operated under one management and extending across the state line. The law of Congress applies to them all. Besides this, it is probably to some extent restrictive of the exercise of the powers which have hitherto been exerted by the State, acting through its courts and commissions, for the control and regulation of railroad business within its boundaries, without regard to the question whether such business was domestic or interstate. The exercise of such powers has had as a warrant only the opinion of the Supreme Court of the United States that "*until*

Congress acts in reference to the relations of this [a] company to interstate commerce, it is certainly within the power of [a state] Wisconsin to regulate its fares, etc., so far as they are matters of domestic concern." And this has been so strictly construed by the same court that it has unanimously held, in all recent cases, that the right of the several States to control in these matters is entirely dependent upon the non-action of Congress. The law as established by this our highest tribunal is :

" The power to regulate interstate commerce vested in Congress is the power to prescribe the rules by which it shall be governed, — that is, the conditions upon which it shall be conducted, — to determine when it shall be free and when it shall be subject to duties or other exactions. The power also embraces within its control *all the instrumentalities* by which that commerce may be carried on, and the means by which it may be aided and encouraged. While with reference to subjects which are local and limited in their nature or sphere of operation, the States may prescribe regulations *until* Congress intervenes and assumes control of them ; yet when they are national in their character and require uniformity of regulation, affecting alike all the States, the power of Congress is exclusive." — *Opinion of Justice Field, April 13, 1885.*

And again: "*If, in the absence of congressional action, the States may continue to regulate matters of local interest, only incidentally affecting foreign and interstate commerce, such as pilots, harbors, roads, bridges, tolls, freights, etc., the power is exclusive whenever the matter is national in its character or admits of one uniform system or plan of regulation.*" — *Justice Bradley, May 4, 1885.*

This is the law of the land which must govern the through business of every New Hampshire railroad except the Profile & Franconia Notch and Mount Washington, and possibly the Whitefield & Jefferson. It follows that much which this Board is asked and expected to do is beyond its power, or that of the State which created it, and that some things that might have been done by us before the passage of the interstate commerce law

must now be left to Congress and its agent, the National Commission.

If the regulation of through freights and fares, the equipment of through cars and locomotives with safety devices and appliances, the running of through trains and the control of through business generally, and the instrumentalities by which it is done, have not been and are not now quite beyond the scope of our authority and duty, they pass over the line as fast as Congress assumes jurisdiction over them.

On the other hand, the exercise by Congress of its right to regulate interstate commerce makes possible the accomplishment of the purpose of the several States in appointing commissions to supervise and regulate railway traffic. "The difficulties arising from the constitutional organization of our dual system of state and national government have precluded the possibility of effective and satisfactory regulation of the business of transportation by States alone." Even in matters in which their authority has not been questioned, state commissions have often found it impracticable to exercise it for the eradication of existing evils, because the application of any rule or order to a portion of a railroad's business and the instrumentalities employed in it, while the rest is regulated in another way by another State, or left free and unregulated, not only fails to afford the desired relief, but causes annoyance and loss to both the railroads and the public.

In the language of Senator Cullom —

"The essence of the effective regulation of business transactions is equality and uniformity, and this is impossible as to two transactions, alike in every other respect, when one reaches across the state line and the other does not. . . . With its authority restricted to less than half of the business operations of the transportation companies subject to its jurisdiction, the obstacles encountered by a State in the exercise of a satisfactory supervision over railroads engaged in business within its borders, and in the administration of equal justice to all its citizens who might use them, are apparent.

“ When these difficulties, with all the opportunities they present for the evasion of the State's authority, are understood, it is not a matter of wonder that the various state commissions should fail to accomplish all that has been expected of them, but it is rather a matter of surprise that they should have succeeded in bringing about the beneficial results which are acknowledged as a result of their labors.”

But with all interstate traffic regulated by Congress, either directly or through the agency of a national commission, the state commissions, by conforming so far as may be to the interstate laws and regulations, and thereby securing the uniformity of rule and action that is so clearly essential, can achieve much more than they have yet been able to do.

PART II.

RAILROAD
HISTORY AND CONDITION.

CONCORD RAILROAD SYSTEM.

Main Line. Nashua to Concord, 34.53 miles. Branch: Hooksett to Suncook, 2.5 miles. Leased lines: Nashua to Acton, Mass., 20.21 miles; in this State, 4.75 miles. Manchester to Portsmouth 40.5 miles, and a branch from Suncook to Concord 7 miles; Manchester to North Weare, 19 miles; Suncook to Pittsfield, 17.37 miles. Total length of road, 141.11 miles. The Manchester & Lawrence road, including the Methuen branch, is operated in connection with the Concord. It is 26.14 miles long, and makes the length of the Concord system 167.25 miles. The Concord also owns a half interest in the Manchester & Keene, which is operated by the Boston & Lowell.

CONCORD RAILROAD.

History and Condition. The charter of the Concord Railroad was granted June 27, 1835, four days after that of the Nashua & Lowell. These were the first in the State, and established, after long and strong contention, our state policy in favor of such corporations. The Concord charter authorized a corporation to construct a railroad from any point on the state line in the towns of Hudson, Salem, or Pelham, or in Nashua village in Dunstable, to the town of Concord, it being provided that the road should not be so laid out and constructed as to be a substitute for the Nashua & Lowell, but if commenced on the state line in one of the towns named, should be "carried on the easterly side of the river as far northerly as Amoskeag village in Goffstown." The grantees were

required to organize and secure subscriptions representing one fourth of the stock before June, 1837, and to expend \$6,000 towards the completion of the road before June 1, 1840; otherwise the charter was to be void. It was not, however, until December, 1840, that a committee, appointed by the grantees in October of that year, to obtain statistical information in relation to the advantage of the road, together with the cost of building and probable profit, made a report, and the first decided steps towards the completion of the road were taken. It was therefore necessary to obtain from the Legislature an act declaring that the money expended in making surveys and doing some other things was to be taken as a compliance with the terms of the charter, and authorizing a continuance of the work, which was done in December of that year. The report of the committee referred to, which consisted of Joseph Low, N. G. Upham, and C. H. Peaslee, forms an interesting and instructive chapter in the history of our railroad system. It shows with what caution and doubt the boldest and most sagacious capitalists risked their money in an enterprise which has since proved a veritable bonanza, increasing in richness with every draft upon its dividend-yielding capacity, and how small conception the fathers of the project had of the possibilities which their charter opened to them. It reveals the littleness of the business this road was built to do, and, by comparison, how that business has increased in less than half a century.

It was written when the Nashua & Lowell road had been in operation two years, and the success of that was the basis of the opinion that it would be well to extend the rails to Concord; but the committee gravely argue that "the certainty and rapidity of transportation for such a distance into the country will be a vast benefit to its citizens," that "no mode of transportation has yet been devised which in our climate can compare with the ad-

vantages of a railroad," and that the advantages of the road will be such that it must receive the hearty good-will of the citizens of the State. These propositions were supported by a formidable array of facts, by which it was shown that the number of passengers then carried by teams over the "Mammoth" road between Concord and Lowell was more than 29,000 annually, and that the freight carried by boats and teams between Boston and Concord in 1839 was 32,162 tons. From this it was concluded that if the road could be built for \$500,000, it could earn 10 per cent or more on its cost.

It was stated further that the business would undoubtedly grow, as the district on the Merrimack River and its tributaries was destined to be a manufacturing center. It was stated that the water-power at Sewall's Falls* in Concord was sufficient for twenty factories of 5,000 spindles each; that at Garvin's Falls at least as large; and the one at Hooksett about the same, while the one at Amoskeag was not exceeded in value by any one in the United States, and, when fully occupied, would run factories enough to furnish 50,000 tons of freight annually.

Accompanying the report of the committee was one by Peter Clark, who had had railroad experience as the agent of the Nashua & Lowell, and was employed as an expert to give an opinion as to the probable cost, receipts, expenses, and profits of the road, and the best route for it. His conclusion was that the right of way could be bought for \$40,000; that the road could be built for \$234,958.32, and fenced for \$8,812.80; that the necessary rolling stock, consisting of three locomotives, three large and two small passenger cars, two baggage cars, sixty freight cars, and two snow-plows, could be had for \$42,700, and that \$10,000 would cover the cost of a suitable station at Concord,

* The power at Sewall's Falls has never been utilized, that at Garvin's Falls carries only a small pulp-mill recently built, and that at Hooksett is but partially used.

\$3,000 of one at Amoskeag (Manchester), while Merri-mack and Hooksett were allowed \$1,000 each and Nashua \$3,000 for depot facilities. The operating expenses he placed at \$32,000 annually.

He was confident that a road thus equipped could carry 60,000 passengers annually between Concord and Nashua at \$1 each, and 30,000 tons of freight at \$2 per ton, making the gross receipts \$120,000.

In conclusion he declared in favor of carrying the road through to Concord instead of stopping it at Amoskeag, one of his reasons being that —

“The farming country about Amoskeag is poor and no leading roads terminate there, whereas there is no town in the State so central as Concord or where the adjacent farming country is better or more easy of access. The boating business which has so long been done at Concord has already diverted the freighting from the adjoining country, and it is not probable that either teams or boats can compete with a railroad when completed to Concord. But if the road should stop at Amoskeag, teams and boats once loaded at Concord would probably continue on to Boston. The further a railroad is extended into the country, the more successfully it can compete with teams and boats.”

These arguments prevailed, and the construction of the road was soon begun. It was opened to Manchester July 4, 1842, and to Concord the next September. It cost \$742,223.27. The capital stock at that time was \$750,000. In their report for the first full year of its operation, which ended May 1, 1844, the directors state the passenger receipts to have been \$72,799.22, the freights \$65,420, and receipts from other sources \$860.26, a total of \$139,080.08, while the expenses were \$65,166.89. In 1845 the stock was increased to \$800,000, in 1846 to \$1,200,000, in 1848 to \$1,485,000, and afterward to \$1,500,000, which is the amount at present. Business increased rapidly from the first, creating a demand for a second track, and additional rolling stock and depot facili-

ties, which were secured and paid for from the proceeds of the sale of the new stock. The second track was laid in 1847-8. In the year ending May 1, 1847, the road carried 203,505 passengers and 103,371 tons of freight, and its gross receipts were \$290,228.70. The Hooksett branch was built in 1861 by the Concord and Manchester & Lawrence roads, at a cost of \$45,000, of which \$27,000 was paid by the Concord. It was made necessary by the discontinuance of the track between Suncook and Candia, and was authorized by the act of the Legislature which permitted the Concord to lease the Portsmouth. This act provided that if the Concord and Manchester & Lawrence were not at any future time operated together, the Hooksett branch should become the sole property of the Concord upon payment to the Manchester & Lawrence of its share of the cost.

In 1856 the management obtained control by lease of its most dangerous rival, — the Manchester & Lawrence, — and in 1858 secured the Concord & Portsmouth. In 1866 it bought the Manchester & North Weare, and in 1870 leased the Suncook Valley. In these ways it acquired a complete monopoly of the immense business centering at Manchester, and firmly established itself as master of the transportation of the entire Merrimack Valley. It has since purchased the Nashua & Acton, which gives it an outlet to Boston, and a half interest in the Manchester & Keene, which prevents others from operating that to its disadvantage. Thus fortified, the Concord road, though but 34 miles in length and but a link in the middle of a long chain, has preserved its integrity in an era of consolidation, dominated to a large extent the railroad policy of the State, and controlled the business of the section through which it and its branches run. Its regular rates have been lower than those upon any other important road in New Hampshire, but such have been its advantages that it has never failed to earn a dividend, and in recent years its sur-

plus has been an immense one. This has been largely devoted to an extensive and costly system of permanent improvements which has already absorbed more than a million dollars, and will call for as much more before it is completed.

This includes the commodious and substantial passenger station at Nashua, the magnificent and model one at Concord, the freight depots and round-houses at Concord and Nashua, the extensive additions to the yards and laterals at all important points, the new stations on the North Weare, Lawrence, and Portsmouth branches, the work done upon the Manchester & Keene, and the grading by which the alignment on nearly the whole line has been improved, all of which are accomplished facts. Beyond this there is promise of a new passenger station at Manchester with safe and convenient approaches, which will in some measure reflect the importance of the city as the largest contributor to the treasury of the road; a new round-house and car-house at the same place, and a new and accessible station at Amoskeag, a commodious and respectable one at Newmarket Junction, and repairs upon those at a few other points; the relaying of the main track with heavier steel, and the transfer of that now in use there to the branches; the reduction of the grades upon the Portsmouth road by extensive cuts and fills, or the construction of a new roadway around the hills; the renewal of wooden bridges with iron, and the acquisition of heavier locomotives.

From a stockholder's standpoint, this is the ideal railroad of the country. It has never failed to pay a semi-annual dividend. The first year it paid 9 per cent, the next 10 per cent, and after that until 1855 the average was 8.8 per cent. In 1856-57 the rate was 6 per cent, then 8 per cent until 1866, except in two years when it was 7. Since 1865 the dividend has been 5 per cent semi-annually, and the road is certain to earn and pay

this in almost any possible contingency. If it could not earn a dollar, its importance as a link in a great through line would make it immensely valuable. Its \$50 shares sold in February for \$120, the premium being higher than that on any other railroad stock in New England. The owners of such a road are bound to give the public the best of service. It is fair to ask of them what cannot reasonably be expected of those who control poorer properties. They should share their good fortune with the public which has given them their franchise. We hear little complaint that they do not recognize and act upon this fact,—the improvements and concessions of the last few years having at least induced their patrons to wait patiently for others.

The present condition of the Concord road is excellent. Its roadway and road-bed can hardly be improved. The double track is all in steel. The ties number 3,000 to the mile, and are renewed as often as is necessary. The sidings, though hardly sufficient at some points to accommodate the immense business of the road, are being rapidly extended. The yards at Concord and Manchester were greatly improved and enlarged last year,—at the former place by a fill 2,520 feet long, 60 feet wide, and 9 feet high, upon which were laid 5,040 feet of steel track, and at the latter by one 550 feet long, 15 feet wide, and 12 feet high, which made room for 3,000 feet of track. There is also a new siding at Amoskeag 1,250 feet long, and short ones at other points. The bridges are substantial, and have received due attention. New abutments have been built at Chandler street in Concord, and iron girders for four tracks put upon them. The Bow Junction, Pembroke, Suncook, Hooksett, and Amoskeag bridges have been repaired. The one at Cemetery brook in Manchester has new iron girders, ties, and floor timbers, and that at Goffe's Falls a new iron roof. The stations at Suncook, Goffe's Falls,

Merrimack, and Nashua have new platforms. About 30,000 feet of new steel track were laid on the main line in 1886.

CONCORD & PORTSMOUTH RAILROAD.

Main Line. From the sea-coast at Portsmouth to Manchester, 40.5 miles. Branch: Suncook to Concord, 7 miles.

History and Condition. In 1845 the Legislature chartered the Portsmouth, Newmarket & Concord and the Portsmouth, Newmarket & Exeter railroads, which were consolidated the same year. The grantees had in mind a road which would connect our only sea-port with the interior of the State and be a strong competitor of the Concord and Nashua & Lowell in carrying people and merchandise of all kinds between tide-water and the upper Merrimack Valley. They did not, however, impress this view upon capitalists sufficiently to raise the necessary funds to construct the road until the original charter expired in 1850 by limitation, and an extension for three years was obtained. The road was opened in 1852 under the name of the Concord & Portsmouth Railroad, its track running from Portsmouth to Candia, and thence in a direct line *via* Suncook to Concord. Its early days were full of embarrassment and trouble. It was heavily burdened with debt, its earnings scarcely paid operating expenses, and its race to bankruptcy was a short one. In June, 1855, it was surrendered to the mortgage bondholders, and two years later a special act of the Legislature authorized a new corporation to buy it, which it did September 1, 1857, for \$250,000. A year afterwards it was leased to the Concord road for five years at an annual rental of \$17,500, of which \$2,500 were to be spent in improvements. In 1862 a new lease was made for ninety-nine years at a

yearly rental of \$24,500, and \$500 to maintain the organization, the capital stock being increased to \$350,000.

The Legislature of 1861 authorized the discontinuance of the track between Candia and Suncook and the construction of a new one from Candia to Manchester, and the hundred thousand dollars which accrued from the sale of the new stock were spent in making this change. Of the \$1,108,859.21 which stockholders and bondholders invested in the enterprise up to the time of the sale to the new corporation, all that was saved to them was the \$250,000 paid by the purchasers. The business which it was built to do is carried by uncontrollable forces elsewhere, but it is the one channel through which Manchester, Concord, Hooksett, Suncook, Franklin, and the smaller towns in their vicinity receive their coal, and the route by which the people of Central New Hampshire reach the beaches of this State and Maine, and as such it is a source of profit to its lessors, and a potent factor in the development and support of the enterprises and industries of the State.

A new station to accommodate the transfer business of this road and the Boston & Maine at Newmarket Junction should be built next year. The others on the road will bear inspection. Most of them are comparatively new, neat, and commodious. The improvement of the road-bed by regrading was continued last year. Between Massabesic and Auburn, Raymond and East Epping, and Greenland and Portsmouth, about 22,000 feet of ballast were added, changing the grade from two to thirteen inches. New sidings were laid at Hallsville, West Epping, Epping, Newmarket Junction, and Portsmouth, and 28,875 feet of steel rails were added to the track. An extension of 250 feet was also made to the wharf at Portsmouth, at an expense of \$27,935.35.

SUNCOOK VALLEY RAILROAD.

Line. From Suncook village to Pittsfield, 17.37 miles.

History and Condition. The first charter, which was granted on January 4, 1849, was allowed to expire, and July 1, 1863, a new one was procured. The building of the road was begun in April, 1869, and finished in December of that year. It was leased March 1, 1870, for forty-two years to the Manchester & Lawrence and Concord Railroad corporations, at an annual rental of \$14,400,—or 6 per cent upon 2,400 shares of the capital stock,—and \$200 for maintenance of organization. The cost of the road was \$348,199.19. Of this amount Manchester paid \$50,000, Epsom \$17,700, Pittsfield \$31,000, and the Pittsfield Manufacturing Company \$3,000, receiving therefor 1,017 shares of the capital stock, coupled with a provision that they should draw no dividends during the continuance of the lease. Individual gratuities to the amount of \$8,000 were also received, and 1,349 shares of stock were sold at par. The balance of the 2,400 shares, which are the basis of the rental, was taken by the Manchester & Lawrence and Concord roads in satisfaction of their claim for money and material furnished to complete the road. The road is in serviceable condition, with a road-bed and track somewhat improved from last year, and a superstructure in good repair. The seven stations are plain, but meet the requirements of the business.

MANCHESTER & NORTH WEARE RAILROAD.

Line. From Manchester to North Weare, 19 miles.

History and Condition. The New Hampshire Central Railroad was chartered June 24, 1845. Its projectors expected to build a road which would extend from Manchester *via* Weare, Henniker, and Bradford to Claremont, and be a link in a great through line between Vermont and

Boston. Their hopes and plans were greatly out of proportion to their available resources, and from the beginning this ill-starred venture was a financial failure. It was with great difficulty that sufficient stock subscriptions were secured to warrant any progress; and when an attempt was made to collect these, it was found that many of them were coupled with conditions that could not be met, that others were purely fictitious, and still others valueless by reason of the irresponsibility of the parties. Later on, when the road had become involved in debt, the suggestion that stockholders were individually liable caused a panic among them and drove them to various desperate devices to escape beyond the reach of what they feared would devour their all. Of the total amount subscribed, about \$40,000 were never collected. But the directors, when money failed, traded stock for land, money, and labor. They paid most of the land damage, one third of the contractors' bills, and a part of the officers' salaries in this way. It was their boast, in one report, that \$80,000 worth of stock had been placed among creditors at par.

The corporation was also greatly troubled by quarrels among its officers and agents. A considerable part of the early documentary history of the road is made up of pamphlets filled with charges and counter-charges, one of the allegations being that Samuel H. Pierce, the managing director, was accustomed to "strut the streets of Manchester in silks, satins, ruffled shirts, and gloves"; to which he replied that the charge was an unmitigated falsehood, that he never wore a ruffled shirt in his life, and that the treasurer, a son of Noyes Poor, his assailant, was the only officer of the road who was guilty of such a misdemeanor. But in spite of financial difficulties, official friction, and stockholders' fears, the road, which was begun in 1848, was opened to Oil Mill village February 19, 1850, and to Heniker December 10 of the same year. In the mean time

the Legislature had chartered the Concord & Claremont and Contoocook Valley roads, and when the Central reached Henniker, the Contoocook having passed that point was open to Hillsborough, and the Concord & Claremont was at Bradford going north. This cut-off and some other causes led to the consolidation by the Legislature of 1853 of the Central and Concord & Claremont, the new corporation taking the name of the Merrimack and Connecticut Rivers Railroad.

Up to this time the total cost of the Central road had been \$600,853.24, of which \$40,734.68 were for equipment and \$54,859.91 for interest and discount on bonds. In the year ending April 30, 1853, it earned \$31,261.75, of which it was claimed \$12,102.82 were net.

The union of the two corporations did not prove satisfactory, and in 1858 the Central, or so much of it as had been built, was rechartered and permitted to rechristen itself, when it took the name of the Manchester & North Weare. From the beginning there had been great rivalry between the Central and the upper roads, the managers of the former desiring to take the business from Hillsborough and Henniker and points above *via* Weare to Manchester and Boston, while the two latter aimed to turn this traffic through Concord. The Concord interest prevailed, and secured in 1856 the passage of a general law permitting the abandonment of portions of a railroad in certain cases; and acting under this, Joseph A. Gilmore, who was then superintendent of the Concord and the two upper roads, tore up and carried away the track between Henniker and North Weare. This elimination of the link between Weare and Henniker left the Manchester & North Weare nothing but a feeder of the Concord, and destroyed the hope that it would live as an independent road. It afterwards passed, by a series of trades and arrangements, into the hands of Joseph A. Gilmore and Robert Corning of Concord, who, after operating it for

some time, transferred their interest in it to the Concord road, which has since owned and operated it, though it still maintains an independent paper organization. Of more than \$600,000 invested in it by stockholders, bondholders, and other creditors, probably not more than \$50,000 ever returned to the original contributors. It has developed little business. There is no more manufacturing upon it than when it was purchased by the present owners, and the only increase in its receipts comes from the summer travel to the charming elevations in Goffstown, Weare, Dunbarton, and New Boston. A new station was built at Goffstown Center last year, and all the others are comparatively new, neat, and attractive. A new windmill was erected at Parker's Station, and supplies an abundance of water at that point, which was greatly needed. The road-bed has been somewhat improved by 42,200 feet of grading between Manchester and Goffstown, and the iron track is in good repair. A new bridge should soon take the place of the old one near North Weare.

NASHUA, ACTON & BOSTON.

Line. From Nashua to Acton, Mass., 20.21 miles.

History and Condition. Only $4\frac{3}{4}$ miles of this road are in New Hampshire, but it is essentially a New Hampshire institution. Its victims, among whom were all who contributed the money to build it, were New Hampshire men, and its value consists almost entirely in its being an outlet from New Hampshire to Boston and New York.

It was chartered in this State in 1872, and opened the next year. From the first it was a financial failure. It was deeply in debt when completed. The contracts and arrangements by which its managers expected to give it a business that would rival that of the Boston & Lowell line were never secured, and its receipts did not pay fixed charges and operating expenses. Its stock became value-

less and its credit exhausted, when in 1876 it was leased to the Concord at \$11,000 per year. Subsequently its securities were obtained by the Concord, which became the real owner. It was operated for a time by the Nashua & Lowell under a contract with the Concord, but is now run by its owners, and extends their line to Concord Junction. It was well built, and has since been well maintained.

MANCHESTER & LAWRENCE.

Line. From Manchester to Lawrence, Mass., 26.14 miles.

History and Condition. The fathers of the Manchester & Lawrence were hampered by none of the financial embarrassments which made the construction of most others in this State a slow and tedious process. It was chartered June 30, 1847. Thirty days later the corporation was organized and its stock offered to the public, and such was the confidence in the enterprise that when the time for receiving subscriptions expired, instead of 5,000 shares, which was the number offered, five times that number had been asked for.

The charter was for a road from Manchester to the state line in Salem, on the easterly side of the Merrimack River, and an extension built and since owned by the Boston & Maine carried it to Lawrence. This extension, known as the Methuen branch, is now operated by the Manchester & Lawrence, the yearly rental being the same dividend upon its cost, which was \$110,000, that is paid upon the Manchester & Lawrence stock. The construction of the road was promptly begun and energetically carried forward, but in 1850 it became evident that more than \$500,000 would be needed to complete it, and the stock was increased to \$750,000. The cost, including equipment and two dividends amounting to \$21,402.68, was, up to January 1, 1851, \$806,599.42, and at that time

the debt of the corporation was but \$50,622.38. To meet this, 500 shares of new stock were issued. Subsequently the stock was increased to meet liabilities, until in 1860 it was fixed at \$1,000,000, where it has remained. October 4, 1850, the road was leased to the Concord for five years, the terms being that the joint earnings of the two roads should be divided in the proportion of 4 per cent on the Concord stock, and 3 per cent on the Manchester & Lawrence, until the Concord received 8 per cent, when any balance was to be shared equally.

This arrangement did not meet the expectations of the Manchester & Lawrence, and in June, 1851, an effort was made to secure from the Legislature an act consolidating the two corporations. This failing in the Senate, a business arrangement known as the quintuple contract, by which the Concord, Boston & Maine, Nashua & Lowell, and Lowell & Boston roads were to be operated "harmoniously" and their earnings pooled, was made to take effect April 1, 1852. December 1, 1856, the road was again leased to the Concord for five years. In 1860 this lease was extended twenty years, and in 1864 until December 1, 1911, but after four years of litigation it was held by the court that these extensions were void; and since that time, while the two roads have been by mutual consent operated together upon the terms of the lease of 1856, there is no legal union between them which cannot be terminated upon the motion of either at any time. Regular dividends were paid by the Manchester & Lawrence up to 1855, when none was declared. The average to and including that year was 5 per cent. After that it was $7\frac{1}{2}$ until 1867, since which time the rate has been 10. The road-bed is a good one, the roadway is well fenced and clean, and the ties are sufficient in number and quality. Seventeen miles of the track are in fifty-seven-pound steel, and the iron portion is in good shape. The stations are fair. Those at Cano-

bie Lake, Windham, and Salem have new platforms. The bridges appear sound and safe. A new one was built at Derry last year, those at Wilson's and Methuen were replanked, and the one at Salem was strengthened by new arches, ties, and double floor timbers. A new side track was laid at Londonderry, and 6,810 feet of steel between that place and Manchester.

BOSTON & LOWELL RAILROAD SYSTEM.

Main Line. From Boston to Lowell, 26 miles. The Boston & Lowell Railroad corporation owns no road in New Hampshire except a half interest in the Manchester & Keene, but the courage and dash of its managers carried its line from Lowell to Keene, Claremont, Groveton, and Fabyan's, and made it for three years one of the greatest forces in our railroad business. It operated in 1886 717 miles of road, of which 421 are in this State. This is nearly two fifths of our entire mileage. The Boston & Lowell, was incorporated June 8, 1830, and opened for business to Lowell June 26, 1835. Its capital stock was divided into shares of \$500 each, the only instance in which the par value of railroad shares has ever been fixed in this country at more than \$100, to which sum these were afterward reduced. Its first cost with one track was about \$1,000,000. Its receipts in 1836 were \$165,124, and its expenses \$75,326. Its first track, or a portion of it, was laid upon stone ties. The earnings of the roads operated by it last year were \$4,628,386. Its capital stock is now \$5,129,400, and its funded debt \$4,346,400. The New Hampshire roads included in its system last year were the Nashua & Lowell, Wilton, Peterborough, Manchester & Keene, Northern, Concord & Claremont, including the Hillsborough branch, Hillsborough & Peterborough, Boston, Concord & Montreal and branches, and Pemigewasset Valley.

NASHUA & LOWELL RAILROAD.

Line. From Lowell, Mass., to Nashua, N. H., 14.50 miles.

History and Condition. Chartered June 23, 1835, the first charter granted by the Legislature of New Hampshire; chartered in Massachusetts April 16, 1836. Consolidated in 1838, in which year the road was opened to Nashua. Operated independently until 1857, paying dividends averaging 8.32 per cent; operated for twenty years, from January 1, 1857, by joint contract, with the Boston & Lowell Railroad. Dividends for eighteen years 10 per cent. No dividends from October, 1874, until October, 1876; 4 per cent paid until October, 1878. The Nashua & Lowell resumed its independent relations December 1, 1878; paid 6 per cent in 1879; $7\frac{1}{2}$ per cent in 1880. October 1, 1880, the road was leased to the Boston & Lowell corporation for the term of ninety-nine years, at $7\frac{1}{2}$ per cent. Capital stock, \$800,000. The road is up to the standard in every respect until it reaches Nashua, where it is unfortunately located, its tracks running across the principal streets at grade, and its transfer station, which is small and dingy, being so placed as to be difficult of access from the Concord depot, or in fact from anywhere else. The entire situation at this junction is bad, and must continually annoy and endanger not only passengers, but people traveling on foot, in carriages and horse-cars, who have occasion to thread the labyrinth of tracks, paths, and streets which separate the two stations. It is probably too late to remedy the evil altogether, but ingenuity ought to be able to devise some way to mitigate them.

WILTON RAILROAD.

Line. From Nashua to Wilton, 15.42 miles.

History and Condition. Chartered December 28, 1844. Built to Amherst in 1848, and to Wilton in 1851. It

was operated by the Nashua & Lowell, which leased it at 6 per cent until 1857, when it passed into the joint management of the Boston & Lowell and Nashua & Lowell. October 1, 1880, the lease of the Nashua & Lowell to the Boston & Lowell carried the Wilton with it, and in 1884 it was re-leased to the Boston & Lowell for ninety-nine years at 7 per cent upon its cost, which was \$242,000.

Its track is mostly iron, but is kept in good repair. Its road-bed and roadway call for no criticism, and its small stations are neat and tidy. The one at Wilton, though a substantial building, is ill-contrived, contracted, and unattractive, and the water-closet in it was a nuisance when the road was inspected. We have a promise that it shall be abated this year.

PETERBOROUGH RAILROAD.

Line. From Wilton to Greenfield, 11 miles.

History and Condition. Chartered in 1872. Completed to Greenfield, and opened January 1, 1874. Leased to Nashua & Lowell Railroad for twenty years from October 1, 1873, at 6 per cent on cost, which was \$588,950. October 1, 1880, the Boston & Lowell road purchased the lease, and has since operated the road. One half the rental goes to establish a sinking fund for the payment of the debt. This is held and paid out by the New England Trust Company of Boston.

We found nothing especially faulty in the road, but considerable money can be spent upon it to advantage.

MANCHESTER & KEENE RAILROAD.

Line. From Greenfield to Keene, 29.55 miles.

History and Condition. The history of this road until it passed into the hands of the present owners is a record of folly, bad faith, and failure. It bankrupted those who built it, wrecked the reputations of many who were prom-

inent in its management, sowed the seed for a great crop of lawsuits, and was for a long time a burden upon the towns through which it runs. It was chartered July 16, 1864, and subsequent legislation in 1870, '72, '73, '74, authorized the grantees to build and maintain a road from Manchester or Goffstown to Keene, to lease the road before or after it was built, and to mortgage it for \$800,000. About the first step taken by the owners of the charter was to secure a pledge of gratuities from the towns along their line, and the next was to mortgage the prospective road for half a million dollars to secure bonds. This mortgage was dated September 19, 1876, and the next year the short section of the road between Greenfield and Hancock was built, the funds being procured by selling the \$17,000 gratuity of the town of Hancock and by borrowing \$20,000 of the Nashua & Lowell Railroad, which was given, as security, bonds for that amount and a lease of the whole road when done. April 4, 1878, the firm of Dawe & Bonallie contracted to construct the road from Hancock to Keene for \$50,000 in cash, \$230,000 in bonds, the gratuities of Keene, \$128,951, of Marlborough, \$8,795, and of Harrisville, \$15,459, and \$249,990 in stock, making in all \$683,195.

Of the cash payment, \$40,000 were to be furnished by the Nashua & Lowell Railroad, and \$10,000 by the Northern Railroad. The contractors were from the beginning greatly embarrassed by lack of money, but by re-assigning the gratuities, disposing of the bonds, and exhausting their credit, they contrived to keep at work until December, 1878, when they failed and departed, leaving behind hundreds of unpaid employés, and numerous other creditors who had furnished them supplies. They had constructed an apology for a road-bed, and had laid a track upon it from Hancock to Keene, and during the winter of 1878-79 an engine and cars, owned by the Nashua & Lowell road, made irregular trips over

it. Demand was then made upon the towns for the gratuities, but they resisted payment on the ground that the road was a railway only in name, and it was only after long and expensive litigation, and the expenditure of considerable sums upon the road, that these gratuities were held to be due and paid to those to whom they had been assigned.

In March, 1879, the Nashua & Lowell road withdrew its engine and cars from the Manchester & Keene, and it was not operated again until the next year. When it became evident in the fall of 1879 that the road could not be completed without the help of outside parties, its president, T. H. Wood, sold for \$8,200 his interest, consisting of \$24,000 in bonds and \$250,000 in stock, to the Nashua & Lowell road, which had previously secured other bonds as security for its loans, and was expected to finish the road, but failed to do so. After much litigation to determine the ownership of the securities, various parties in interest put it into condition in which it could be operated, and trains were run over it for a time by the Connecticut River road, and subsequently by the Boston & Lowell road. In the meanwhile the court appointed a receiver, and finally, the necessary legislation having been obtained, the road was sold for the benefit of bondholders to the Boston & Lowell and Concord roads for \$125,000, and the receiver's liabilities, amounting to about \$60,000 more. A large amount of money has been expended upon it since the sale, the cuts have been widened, the fills broadened, many of the rotten trestles replaced with iron bridges, and others filled up, and the track is greatly improved. The stations are generally poor, very poor. The road is now operated by the Boston & Lowell, and during the past year has done a largely increased business.

NORTHERN RAILROAD.

Main Line. From Concord to White River Junction, 69.5 miles. Branch: From Franklin to Bristol, 13.41 miles.

History. The Northern Railroad was first chartered June 18, 1844. The charter authorized the grantees to build the road after buying the necessary land of the owners. As it was found impracticable to do this, the charter was repealed at the fall session of the Legislature the same year, and a new one providing for the condemnation of the land without the owners' consent was obtained. The corporation was organized soon after.

At the first meeting of the directors, of whom Hon. George W. Nesmith was chairman, they voted to engage Onslow Stearns as agent or superintendent of contracts, and thus secured the services of the man to whose courage, sagacity, and skill the road owes much of the success that has attended its operation, for the Northern is emphatically the child of good management.

Its route is from Concord to the western bank of the Connecticut at White River Junction. Its grades are heavy, and it is an expensive road to keep in repair and to run. Its local business has always been comparatively light, and its through traffic has been secured in the face of sharp competition. It has no natural advantages over many others that have passed from stockholders to bondholders, from bondholders to bankruptcy, and finally been lost in consolidations. But it paid an average dividend of 3 per cent until 1855, and after that time from 4 to 8 per cent.

Its stock was quoted at \$128 March 1. The construction contracts were made in the fall of 1845, and in December, 1846, the road was opened to Franklin. As it had no equipment, the Concord road was hired to operate it to this point while it was being extended to Grafton,

which was reached September 1, 1847. The next November it was carried to Lebanon Center, and in June, 1848, its trains crossed the Connecticut. The first rails laid upon it cost \$85 per ton, but before it was finished the price had fallen to \$70.

The original capital stock was \$1,500,000, which was increased \$500,000 November 18, 1846, \$400,000 more October 7, 1847, and \$200,000 more April 22, 1848. To place the last two issues cost in expenses and discounts \$51,094.13. Subsequently there was another increase, making a total of \$2,768,400 May 1, 1851, and since that time another, so that the whole is now \$3,068,400, of which \$70,000 are owned by the corporation.

The Bristol branch was chartered as an independent road in 1846 under the name of the Franklin & Bristol Railroad, and its construction was begun the next year. But in 1848 it was leased for 100 years to the Northern, and the same year the Legislature merged it in the larger corporation, which completed it. Its cost to April 30, 1851, was \$236,544.44. In the year ending May 1, 1849, the consolidated roads carried 128,544½ passengers and 73,442 tons of freight, and earned net \$167,280.96. The directors in their report that year put the entire cost of the 82 miles of road and its equipment at \$2,766,500. The policy inaugurated in dealing with the Bristol branch has been followed elsewhere to secure feeders for the Northern and prevent the control of other routes from passing into rival corporations. The Concord & Claremont and Contoocook Valley roads, Sugar River and Peterborough & Hillsborough roads are, to all intents, branches of the Northern, and the two latter are the results of Northern encouragement and financial support.

Early in its history the Northern became the owner of the securities of the Concord & Claremont, Contoocook and Sullivan roads, and afterward foreclosed the mortgages upon the two first named, and having obtained the

necessary legislation, in 1866 furnished what money was needed to build the Sugar River extension, and then consolidated the whole line. It also created the Peterborough & Hillsborough by guaranteeing the bonds issued by that corporation.

In 1854 it made a contract with the Sullivan, Vermont Central & Ogdensburg Railroad by which it secured the through business of the two last named, and in return accepted, as part payment for carrying freight received from them, bonds of the nominal value of \$225,000. The Sullivan County road became its property by virtue of its ownership of the stock in the new corporation, organized to purchase that road under the act of July 3, 1866.

In 1884 the Northern and its subsidiary roads were leased to the Boston & Lowell for ninety-nine years at 5 per cent upon its capital stock and the fixed charges. Out of this grew the litigation which involved the validity of this and other leases, and to which is chargeable the postponement of many needed improvements upon this road and the Boston, Concord & Montreal and their branches. The lessors, having parted with the control of their roads, have been in no condition to make permanent betterments, and the lessees have pleaded the reasonable excuse for delay that until it was settled that they were to hold and enjoy the property they could not be fairly expected to make large outlays upon it beyond what was necessary to render it safe for the immediate present. On the 11th of March, 1887, the court declared the lease invalid, and the Northern reverted to the hands of its stockholders.

The road-bed and track of the Northern's main line will compare with any single-track road in the State. The ballast, ties, and rails are of first-class material and fashioning and in perfect repair. The drainage is good, the roadway tidy, and the fences unbroken. Most of the stations are old, not very attractive, and destitute

of a water supply, but clean and passably commodious. Some of the bridges require early attention, though every precaution appears to be taken to make them as safe as structures of their age and original strength can be.

In 1886 the stations at South Danbury, Andover Center, East Andover, Franklin, and Bristol, the engine-houses at Concord and West Lebanon, the water-houses at Danbury, Potter Place, East Andover, and North Boscawen, the bridges at West Lebanon, Cox's Mill in Enfield, Campbell's Mill in Canaan, Kimball's, Brayle's, and Smith's in Grafton, and Hill's on the Bristol branch, were repaired. The Hubbard, Welch's Mills, and Straw's passes were rebuilt. The Hog-back deck bridge has been entirely renewed, including the abutments, at a cost of \$5,300. The Chandler bridge, 112 feet long, across the Mascoma in Lebanon is also new, at a cost of \$3,000. Canaan pile bridge received new ties, and Pennacook bridge was strengthened by adding two heavy arches running into the abutments, with suspension rods attached to the timbers underneath. A large portion of the trestle in Franklin was renewed with Southern pine, and the twenty-two through and deck bridges between East Andover and Lebanon received general repairs. Thirteen miles of steel were taken from the track and its place supplied with that much heavier, while it was transferred to the line between Contoocook and Peterborough where it displaced iron rails.

CONCORD & CLAREMONT RAILROAD.

Main Line. From Concord to Claremont, 56 miles.
Branch: From Contoocook to Hillsborough Bridge, 14.9 miles.

History and Condition. What is known as the Concord & Claremont Railroad includes the salvage from several

wrecks. The first road with this name was chartered June 24, 1848, and it was the purpose of the grantees to build it through to the Connecticut River at Claremont. They succeeded in reaching Bradford, July 10, 1850, when they were obliged to suspend operations for want of funds. May 1, 1851, the total expenditures had been \$560,624.43, and of this more than \$250,000 were unpaid and unprovided for. The expense account included one cash dividend, which is the only one ever paid on the stock, from the sale of which the corporation had received \$266,031.75. Soon after this, Boston capitalists, who had advanced large sums of money to the managers of this road and the New Hampshire Central, concluded that they could only realize upon their investment by uniting the two and extending the Concord & Claremont to Claremont to form a junction with the Sullivan County, and secure a through line. In attempting to carry out this plan they induced the Legislature to consolidate the Concord & Claremont, Contoocook Valley and Central, making the Merrimack & Connecticut Rivers Corporation, which was done in July, 1856, when the life of the original Concord & Claremont road ended. The same year the Sugar River road from Bradford to Claremont was chartered, but later on the Northern obtained the securities which represented the through line as far as it was built, and the extension was not begun until 1870. It was opened to Newport in 1871, and Claremont in 1872, and October 31, 1873, was consolidated with the Merrimack & Connecticut Rivers road under the name Concord & Claremont (New Hampshire) Railroad. The Sugar River was built with gratuities by the towns along its line and the proceeds of bonds guaranteed by the Northern. The Contoocook Valley Railroad was chartered June 24, 1848, the grantees being authorized to construct a road from any point on the Concord or Northern roads in Concord to Peterborough, provided a portion of

the route was not built by the Concord & Claremont. As this corporation did build to Contoocookville, on its way to Bradford, the Valley road was begun at that place. It was opened to Hillsborough Bridge December 13, 1849, but as it owned no rolling stock its directors contracted with the Concord & Claremont to operate it, and November 1, 1850, it was leased to that road for two years, the rent depending on its earnings. The cost of the road to May 1, 1851, was \$219,450.27, of which a large share was represented by bonds and other evidences of indebtedness. In the report for 1852 the directors confess their inability to deal with its numerous creditors, and complain that, owing to unfair competition by the Wilton road, backed by the Nashua & Lowell, they have done business at a loss, but add that they are happy to be able to state that quite a number of stockholders who agreed to buy bonds have been sued, and that "the future of the road cannot be worse than the past." In 1854 they say, "The lease of the Wilton road to the Nashua & Lowell was literally the ruin of the Contoocook Valley, and the sale of the Merrimack & Connecticut Rivers Railroad places us completely at the mercy of the Northern." September 1, 1854, the road was surrendered to the trustees of the first-mortgage bondholders. The bonds owned in New York were purchased by Joseph A. Gilmore and Robert N. Corning for \$33,000, or about half their face value, who thus became the virtual owners of the road. These bonds were afterwards traded to the Northern road, in exchange for those of the New Hampshire Central, and in 1856 the corporation was merged in the Merrimack & Connecticut Rivers. The Concord & Claremont is well graded and the track is serviceable, but we hope to see it improved in both respects the coming year, as the business of the road is growing to the proportions which demand more than the degree of excellence that satisfies on a branch road. The bridges

and stations below Bradford are like those on the Northern main line, and for the same reason some of them should be soon renewed, and must be when it is known whose business it is to rebuild them. The stations at West Concord, Contoocook, Warner lower village, Waterloo, Northville, Melvin's, Bradford, Newbury, Mt. Sunapee, and Newport received general repairs last year, as did the bridges near Mast Yard, Contoocook, Roby's, and Melvin's, the Wheeler, Todd pond, and Blood bridges in Bradford, the Crowell's Meadow and Trask stringer bridges in Sunapee, the Huntoon and Eads in Newport, Chandler's and Wright's near Chandler's station, and Chase's at Claremont. Rogers bridge at Melvin's was rebuilt, also the Rounseville trestle at Newport.

PETERBOROUGH & HILLSBOROUGH RAILROAD.

Line of Road. From Hillsborough Bridge to Peterborough, 18.5 miles. Single track, iron rails.

History and Condition. The first charter for a road between Peterborough and Hillsborough was included in the Contoocook River. The next was for an independent road, and was obtained July 18, 1869. This was extended in 1876, and work upon the road began that year. It was opened in July, 1878. Its capital stock, which was nominally \$500,000, is valueless. Its bonds, which consist of \$100,000 first mortgage and \$65,000 second mortgage, are guaranteed by the Northern, which operates the road. The bridges at Childs's pond, Kimball's brook, and Hubbard's brook were rebuilt, those at Colby's brook, Austin's brook, the three at West Deering, and the Henniker pile and Hillsborough pile bridges were repaired. The engine-house at Hillsborough was rebuilt, and several of the stations somewhat repaired.

BOSTON, CONCORD & MONTREAL RAILROAD.

Main Line. From Concord to Wells River, Vt., thence to Groveton Junction, 145.877 miles. Branch: From Wing road to Mt. Washington, 20.39 miles. Leased Road: Pemigewasset Valley, 20 miles. Whole length of track, 186.267 miles. (To this might properly be added the Whitefield & Jefferson road, 13.36 miles, which is virtually a part of the Boston, Concord & Montreal system, making a total of 199.62 miles.)

History and Condition. The Boston, Concord & Montreal charter was granted December 27, 1848. It authorized a road connecting the Merrimack and Connecticut rivers, by way of Lake Winnepesaukee, and for some time the grantees were in doubt whether to locate the northern terminus at White River, or farther up the Connecticut; but it was finally decided to go to Wells River. It was opened to Sanbornton Bridge May 22, 1848, to Lake village October 1, and to Meredith village March 19, 1849. The first train ran to Wells River in May, 1853, but it was not fully opened to that place until the following August. Its slow progress was largely due to the difficulty experienced in raising the necessary funds. When the construction account closed in May, 1856, it footed up \$2,580,134.78, and \$282,288.33 had been spent for equipment. The liabilities were \$850,000 in bonds, a floating debt of \$239,743.82, \$800,000 of preferred, \$541,600 of new, and \$421,700 of old stock. The income for the year ending April 30, 1856, was \$286,949.83, and the operating expense \$163,378.67, showing a net income of \$123,949.83. But this did not enable the directors to stem the swelling tide of liabilities, and January 1, 1857, the property was assigned to trustees, and a committee appointed to devise some method of providing for the floating debt and the maturing bonds. This committee succeeded in a measure, and three years afterwards the management reverted to the

directors. In the mean time John E. Lyon had become interested in the enterprise, and in 1857 was chosen one of the directors. He succeeded Hon. Josiah Quincy as president of the board in 1860. From that time on until his death in April, 1877, he was the controlling spirit in the B., C. & M. He had the sagacity to see and the strength to grasp the possibilities connected with it as an avenue to the mountain region. He was a man of immense resources, and he devoted them all to the support and extension of the road; and step by step, in spite of great obstacles, he carried it through the wilderness and over the steeps to Groveton and to Fabyan's. The White Mountain Railroad was chartered in 1848, and opened to Littleton in August, 1853. As it had no equipment, the B., C. & M. agreed to run its trains over the track for \$7,000 per year, and in 1859 leased the road at an annual rental of \$10,000 for five years. This lease was extended for twenty years, but in 1873 the White Mountain road was consolidated with the B., C. & M., its stockholders exchanging their stock for \$300,000 in 6 per cent consolidated bonds. Prior to this the White Mountain road had been extended to the Wing road in Bethlehem, which it reached October 1, 1869, to Pierce's Mills January 1, 1872, to Lancaster November, 1870, and to Groveton in Northumberland August, 1872. The branch road from Pierce's to the Twin Mountains was completed in July, 1873, and extended to Fabyan's in July, 1874. The cost of the extension from Littleton to Groveton, from Wing road to Fabyan's, and the Y at Woodsville, was about \$1,440,000, and was provided for as far as possible by the sale of mortgage bonds. In July, 1876, the road was extended from Fabyan's to the base of Mt. Washington. In December, 1881, the B., C. & M. voted to lease the Pemigewasset Valley road from Plymouth to Woodstock at 6 per cent on its cost for ninety-nine years, and the result was the construction of that road.

The benefits growing out of the construction of this road have accrued to the State rather than its builders. The original stock, amounting to a million dollars, has paid none but scrip dividends, and the preferred, of which there is \$800,000 outstanding, paid nothing until 1869. After that it paid 3 per cent semi-annually until 1885.

In 1884 the Boston, Concord & Montreal was leased to the Boston & Lowell for ninety-nine years, the rental being 25 per cent of the gross receipts of the Northern, Concord & Claremont (N. H.) railroads, and the Boston, Concord & Montreal Railroad, less \$200,000 per year, with a guarantee that said rental should be sufficient to pay the interest on its indebtedness, the rental due the Pemigewasset Valley Railroad, and 6 per cent on the preferred stock of the Boston, Concord & Montreal Railroad for the first year of the lease, and 5 per cent thereafter. At that time the road was badly out of repair, and the lessee began a comprehensive and costly system of improvements, designed to fit it for a largely increased business. But the validity of the lease being called in question in the litigation growing out of that of the Northern road, made at the same time, the work of making permanent betterments has been to a large extent suspended to await the decision of the court. Nevertheless, considerable has been accomplished, and what has been done is of the most thorough and enduring character. All the main line from Concord to Fabyan's, except about six miles, is now in steel, and the road-bed is well ballasted, surfaced, and supplied with ties. The rest of the track is iron and the road-bed more cheaply built, but in the main both are in serviceable condition. Many of the small and a few of the large bridges have been rebuilt in the most substantial manner. The others require constant care, and must soon be renewed from foundation to roof.

The depot accommodations are of all descriptions. Those at Tilton, Weirs, Plymouth, Ashland, Lancaster,

Littleton, Lisbon, and Fabyan's answer every requirement, and some of them are elegant structures, while those between Concord and Tilton are unfit for use, and the one at Laconia is a relic of a poverty-stricken era, — small, dilapidated, and filthy, — and that at Woodsville falls far short of being what the business there demands. There is also need of renewals and repairs at many other points.

There have been large additions to the equipment of the road, and the train service is most excellent. No more elegant passenger coaches run anywhere than those which make up the White Mountain expresses of the Boston & Lowell road, and the accommodation and freight trains convene local patrons.

Last year the bridges at Sewall's Falls and Wild Cat brook in Concord, at the Lake Village station, the Smith bridge at Ashland, the over and under passes at Woodsville, and the Kelsea and Mountain brook bridges at Lisbon, were rebuilt. Those at Tilton, East Tilton, and Laconia, and the three-mile bridge above Littleton, have been repaired, the last at a cost of \$1,400. New bridges were built at the Lake, New Hampton, Rumney, West Rumney, Littleton, Warren Summit, and at Bridgewater over the Pemigewasset. This is now a most substantial double-lattice bridge, 435 feet long, with massive and well-laid masonry. It cost \$15,000.

At Ashland a temporary trestle, 75 feet high and 525 feet long, was erected to use while a new bridge is being built, and the timber for this much-needed improvement is on the ground.

The stations at East Tilton, Lisbon, Ashland, Littleton, Lancaster, Bethlehem, Zealand, Twin Mountain, and Fabyan's were repaired. The freight-houses at Tilton and Meredith were enlarged, and the engine-houses and shops at Woodsville extended and improved, at a cost of \$5,000. An addition to the engine-house at Wing road was also built.

PEMIGEWASSET VALLEY RAILROAD.

Line. From Plymouth to North Woodstock, 20 miles.

History and Condition. Chartered in 1874; opened in 1883. Leased to the Boston, Concord & Montreal for ninety-nine years at 6 per cent upon its cost, which was \$500,000.

The road is new and in fair condition for the business it receives, which is mainly in the summer. Considerable work was done upon it last year to repair damage by freshets, which cause much trouble and loss upon it every spring. An extension of this road is expected in the near future.

WHITEFIELD & JEFFERSON RAILROAD.

Line. From Whitefield to Jefferson, 10.68 miles. Branch: From Jefferson to Camp Carroll, 2.68 miles. The Brown Lumber Company, of Whitefield, encouraged and assisted by the Boston, Concord & Montreal Railroad, built this road in order to take lumber from the forests in and beyond Jefferson to the Whitefield mills and the tracks of the Boston, Concord & Montreal. It was chartered June 11, 1878, and constructed so as to be passable for log trains the next year. Subsequently it was so improved as to carry passenger trains, and is now in first-class condition. In the summer it carries large numbers of visitors to Jefferson, and does the general business of that town at all seasons, although the bulk of its business is still freighting logs. It is gradually being pushed up the valley, and will undoubtedly go through to Berlin, where it will form a junction with the Grand Trunk. It cost \$189,504. Its capital stock, which is \$170,000, is owned by the Brown Lumber Company and the Boston & Lowell, the lessee of the Boston, Concord & Montreal.

BOSTON & MAINE RAILROAD SYSTEM.

Main Line. From Boston, Mass., to Portland, Me., 115.5 miles, of which 36.75 are in Massachusetts, 34.75 in New Hampshire, and 44 in Maine. Branches: Medford 2 miles, Methuen 3.75 miles, and Great Falls 2.75 miles. Leased: Eastern of Massachusetts, Eastern New Hampshire, Portland, Saco & Portsmouth, Portsmouth, Great Falls & Conway, Wolfeborough, Chelsea Beach, Newburyport City, Portsmouth, Dover, Danvers, Newburyport, Lowell & Andover, West Amesbury, Dover & Winnepesaukee, Kennebunk & Kennebunkport, Worcester, Nashua & Rochester. The Portland & Rochester is also in reality a part of the Boston & Maine system.

History and Condition. This immense corporation,—which last year operated 583 miles of road, on which are 959 miles of track, carried 17,022,587 passengers and 2,703,201 tons of freight, and earned \$7,543,691.30,—had its origin in the Andover & Wilmington Railroad chartered in Massachusetts March 15, 1833. The extent of the earliest project was a branch from the Lowell Railroad in Wilmington to Andover, a distance of less than 8 miles. This was opened for travel in August, 1836. It was continued to Bradford in 1837. In 1845 the connection with the Lowell road was broken, and the road was extended to Haymarket Square in Boston.

A charter was obtained in this State in 1835, and the road from the Massachusetts line was opened to Exeter in 1840, to Dover September 1, 1841, and to Great Falls in July, 1843. Portland was reached in 1847 over the rails of the Portland, Saco & Portsmouth road, the Boston & Maine having united with the Eastern in leasing that road for 99 years at \$90,000 a year. But the rival interests of the two Massachusetts corporations were a constant strain upon their union in the Portland, Saco & Portsmouth, and in 1871 the Eastern terminated the lease, paying

\$100,000 for the privilege and taking sole control of the road. To this the Boston & Maine responded by extending its rails to Portland, and in 1873 first went to that city on its own iron.

The Dover & Winnepesaukee Railroad from Dover to Alton was leased by the Boston & Maine November 1, 1863, for fifty years at \$29,000 per year, and its rolling stock was purchased by the lessor for \$40,075. The road has ever since been a part of the Boston & Maine system. The Boston & Maine, which was the first to cross the Merrimack River, has long been one of the great and growing railroad corporations in New England. It has had great advantages, and improved them to the utmost. Its management has always been strong and successful, and was never more so than now. Its gross receipts trebled between 1862 and 1878, and again between 1878 and 1887. In 1869 the capital stock was increased from \$4,155,700 to \$4,555,000; in 1871 to \$5,000,000, and in 1872 to \$7,000,000.

The stock has always paid large dividends, ranging from 6 to 10, and averaging 8 per cent. It sells now for more than twice its par value. That portion of the main line which is in New Hampshire is very near a model. The road-bed, roadway, rails, ties, and fences can hardly be improved. The stations are not only (with one or two exceptions) roomy, convenient, and wholesome, but they are tastily painted and kept scrupulously neat. The bridges deserve commendation. It is one of the theories of the manager of this road that a railway bridge should not only be strong enough to carry the heaviest trains when upon the track, but that the flooring should be so near a solid mass of heavy timber, and so protected by guard-rails, as to afford a safe roadway in case of a derailment, and every new bridge put upon the line is an approach to this standard.

The practice peculiar to this road of giving prizes to

station-agents for the best floral display upon the grounds in their charge has been continued, and has added many attractions to the route. The improvements last year included a new iron bridge near Exeter, a new turn-table at that place, and new side tracks at Dover.

WORCESTER, NASHUA & ROCHESTER RAILROAD.

Line. From Worcester, Mass., *via* Nashua to Rochester, 94.08 miles.

*History and Condition.** “The Worcester & Nashua Railroad was chartered in New Hampshire in 1845; in Massachusetts in 1842. Consolidated with the Groton & Nashua road June 26, 1845. The latter road had been chartered by the New Hampshire Legislature December 24, 1844. The road was opened from Groton Junction to Clintonville July 1, 1848; from Clintonville to Worcester November 22, 1848; from Groton Junction to Nashua December 18, 1848. The capital stock, authorized in both States, was \$2,100,000. The original cost of the Worcester & Nashua road, including equipment, was \$1,425,235, which was increased from time to time to \$2,543,921.02. On the completion of the Nashua & Rochester road in 1874, that road passed, by lease for fifty years, into the hands of the Worcester & Nashua road, on a guarantee of 6 per cent upon the stock and bonds. The former road had its origin in the Nashua & Epping Railroad, chartered December 29, 1848. The road was opened November 24, 1874, under a lease to the Worcester & Nashua for fifty years, at an annual rental of 6 per cent upon the cost of the road, which was \$2,000,000, or \$41,300 per mile. The capital stock paid in amounted to \$1,305,800; of which \$200,000 was taken by the Worcester & Nashua, \$200,000 by the city of Nashua, and \$100,000 by the Port-

* Report of 1886.

land & Rochester Railroad. Bonds were issued to the amount of \$700,000. The Worcester & Nashua and Nashua & Rochester were consolidated in 1883, under the title of the Worcester, Nashua & Rochester Railroad. Eight and ten per cent dividends were paid by the Worcester & Nashua until the earnings were absorbed by the Nashua & Rochester lease. Dividends were suspended in 1877, and resumed in 1881 at 3 per cent. March 22, 1879, the rate on the Nashua & Rochester stock was also reduced to 3 per cent by the consent of the lessor to a modification of the lease. On the 1st of May, 1886, the road passed, by a long lease, into the control of the Boston & Maine Railroad, and now constitutes the Worcester, Nashua & Portland division of that system."

This road was in excellent condition when the present lessors obtained possession of it, and it has since felt the strengthening influence of their ample means and vigorous management. Road-bed, ties, roadway, and fences are all commendable. The track is being put in steel, though that portion of it now in iron is in good shape. The stations, with one exception, are remarkably neat, commodious, and attractive in all their arrangements and appointments. Most of them are provided with water and modern water-closets, and in this respect they excel those on any other line in the State. A largely increased business, a reduction of fares, and an improved train service have followed the change of ownership. One thousand five hundred and fifty tons of steel rails and 47,612 new ties were laid last year, and new side tracks were put in at Rochester, Gonic, New Epping, and Nashua.

DOVER & WINNIPESAUKEE RAILROAD.

Line. From Dover to Alton Bay, 29 miles.

History and Condition. The Cocheco Railroad was char-

tered in 1839, but no progress was made towards building it until ten years later, when work was commenced under a new charter granted July 2, 1847, the old one having lapsed. The road was opened in 1851. Its liabilities at that time were \$389,000 in stock and \$420,000 in bonds. It was understood by the owners of these that the road was to be immediately leased or run in connection and upon favorable terms with the Boston & Maine, but the directors of the two corporations could not agree, and it was operated independently by its own directors and at a loss until August 20, 1862, when it was surrendered to trustees. In that year the Legislature authorized the corporation to reduce the stock to the amount of the indebtedness, amounting to \$480,000, to reorganize as the Dover & Winnepesaukee Railroad Corporation, and to extend the road to Portsmouth, where it would connect with the Eastern. This induced the Boston & Maine to lease it for fifty years, at \$29,000 a year, and after it had been operated six months by the new corporation it was transferred to the lessee. It is not a first-class road, but meets the requirements of a small traffic. Considerable money has been spent at Alton Bay to accommodate camp-meetings and other summer gatherings. The stations are passable and the road-bed and track in good repair. One long bridge is to be rebuilt this year. It connects at Alton with the lake steamers owned by the Boston & Maine, and with these forms one of the most attractive lines to the mountains.

WEST AMESBURY BRANCH RAILROAD.

Line. From Newton to Merrimack, Mass., 4.45 miles.

History and Condition. Chartered in this State in 1868. Built in 1872. Opened January 9, 1873. Cost \$114,000. Leased to the Boston & Maine for \$5,700 a year, or 5 per cent upon its cost, one half of which is represented by 7 per cent bonds and the other half by stock. One excel-

lent station and two and a third miles of good road constitute the New Hampshire section.

EASTERN & EASTERN NEW HAMPSHIRE RAILROADS.

Main Line. From Boston to Portland, 108.29 miles.

History and Condition. The Eastern is a Massachusetts railroad. Its act of incorporation, dated April 14, 1835, gave it the right to build and operate a road from Boston to the New Hampshire line, to which it was opened November 9, 1840. On the same day the Eastern in New Hampshire, which was chartered June 18, 1836, completed its road from the Massachusetts line to Portsmouth. Before it was finished the New Hampshire road was leased to the Massachusetts corporation, and, so far as the public are concerned, has ever since been a part of its road. This lease was for ninety-nine years, and bound the lessee to pay the same dividends on the stock of the leased road as its own received. In 1847 the Eastern joined the Boston & Maine in leasing the Portland, Saco & Portsmouth, and thus secured a through line between Portland and Boston.

In 1875 the report of the directors first revealed in detail to the stockholders in the Eastern the bankruptcy of the corporation, which had been brought about by ill-advised attempts to extend its branches and feeders, regardless of cost, mismanagement in other directions, the positive dishonesty of some of its officers, and the fierce competition with the Boston & Maine. That report put the debt of the corporation at \$14,859,648.98, and the stock at \$4,997,000. The annual interest on the debt was about a million. A table of losses caused by investing in other roads, by accidents, fires, discounts on bonds, and direct competition with the Boston & Maine, aggregated \$8,245,980. The earnings of the road for the year 1875 failed to pay operating expenses and fixed charges by nearly \$400,000. The discovery of these facts ruined the credit

of the Eastern road. The stock, which in 1873 sold for \$109, was quoted at $3\frac{1}{2}$ in 1876 and $2\frac{1}{2}$ in 1877. Such a collapse, of course, overwhelmed all the dependencies of the Eastern, for its guarantees and other obligations were not only worthless, but from their peculiar character were a crushing weight upon those who held them. The stock of the Eastern New Hampshire fell from \$102 in 1873 to $18\frac{1}{2}$ in 1875, and that of the Great Falls & Conway from \$116 in 1871 and 97 in 1873 to $2\frac{1}{2}$ in 1875. Under these circumstances the owners of the Eastern New Hampshire commenced proceedings in court to abrogate the lease of 1840, and out of these grew a new lease in 1879, when the Eastern had been reorganized and had somewhat recovered, under the terms of which they receive $4\frac{1}{2}$ per cent upon their capital stock for the use of their road. In 1883 the lease of the Eastern system to the Boston & Maine for fifty years carried with it the Eastern New Hampshire. The Eastern road-bed from Portsmouth to the state line is good enough, so are the rails, ties, and all the elements of the road's physical condition; and its train service satisfies a large and exacting class of patrons. The Portsmouth station was painted and the Portsmouth bridge and coal-pockets extensively repaired last year.

PORTSMOUTH, GREAT FALLS & CONWAY RAILROAD.

Line. From Conway Junction, Me., to North Conway, 72.86 miles.

History and Condition. In 1844 the Legislature chartered the Great Falls & Conway Railroad, and it was built in 1849 as far north as Union village, and mortgaged to secure the bonds of the company to the amount of \$100,000. A second issue of bonds for the same amount was guaranteed by the Eastern in New Hampshire, and this was followed by a third one for \$60,000. These securities were bought by the Eastern Company for

\$307,560. The Great Falls & South Berwick branch was built in 1851-52. It connected Great Falls with the Portland, Saco & Portsmouth road at Conway Junction in Maine, and the Eastern by foreclosing mortgages obtained a title to this also, thus securing an extension from Portsmouth to Great Falls. In 1856 the Portsmouth, Great Falls & Conway road was incorporated, with power to purchase the Great Falls & Conway road, and the South Berwick branch, and the company organized under this charter purchased these roads of the Eastern for \$208,173.94, paying for them in stock in the new corporation at par. With this accomplished, the road was pushed toward the mountains, the objective point of its owners at that time being West Ossipee, from which it was proposed to carry passengers to Conway in stages. The rails between Union village and West Ossipee were laid in 1870, and the road opened in July of that year. The cost of this section was \$767,200, and was paid for in stock, of which the Eastern Railroad took \$168,200. The stock at this time sold in market for \$107 a share. It was soon found that the scheme for extending the line to Conway by stages was a failure, and the road to that place was built and commenced business December 8, 1871. It was afterwards extended to North Conway, June, 1872. The cost from West Ossipee to North Conway was \$483,400.99, and the money was furnished by the Eastern Corporation, as was \$220,000 more spent in completing the road below Union village. This made the entire cost of the road \$2,105,689.50. When the road was completed the Eastern held of its securities \$1,000,000 in bonds and \$551,000 in stock. September 12, 1870, the Portsmouth, Great Falls & Conway road was leased to the Eastern in New Hampshire for sixty-nine years, the rental being the same dividend per share upon the stock as is paid to the Eastern stockholders, and $4\frac{1}{2}$ per cent upon the bonded debt of \$1,000,000. The disasters that befell the Eastern between

1870 and 1875 paralyzed the Portsmouth, Great Falls & Conway. In 1878 its resources consisted mainly of the courage, industry, and tact of a Wakefield farmer, to whose efforts its extension above Union village was largely due, and who had been appointed its superintendent a short time before. At this date it did not pay operating expenses. Its track was a menace to life and property, its decrepit rolling stock was in the hands of a sheriff, and its credit was so poor that the superintendent was obliged to buy upon his individual credit fuel for its locomotives, and swap the old spikes for a few tools with which to repair its broken and battered rails, while its stock was quoted at $1\frac{1}{2}$. He proceeded to create a business for it by making it for the advantage of manufacturers and landlords to locate upon it, and by coaxing tourists over it, and was steadily increasing its receipts when the lease of the Eastern to the Boston & Maine grafted it upon a strong corporation, and gave the man who had demonstrated his ability to run it with nothing an opportunity to show what he could accomplish when he had the means to do with. Its business has quadrupled in ten years, its stock sells for \$118, and it is rapidly being put in excellent condition. Twenty-two miles of the track are in steel, thirteen and one third miles having been laid last year. The ballast is fair and steadily being bettered. The improvements for 1886 include a new culvert at Brown's brook, new masonry and eye-beams for the bridge at Union, stone culverts and a substantial pile bridge at Milton, a new turn-table at North Conway, extensive repairs upon the coal-sheds at Wolfeborough Junction, and general repairs upon the bridges and structures of the whole line. The stations at Center, Ossipee, Conway, Woodbury Junction, and East Wakefield have been painted and renovated, and, like the others on the road, are attractive and neat. For the joint use of the roads doing business there an elegant brick structure

with sandstone trimmings was erected last year at Great Falls to take the place of the dingy and dilapidated affair that has hitherto served as a passenger station at that place. It cost, including the extensive stone-work, about \$20,000, is an ornament to the town and a credit to the road.

PORTSMOUTH & DOVER RAILROAD.

Line. From Portsmouth to Dover, 10.88 miles.

History and Condition. In 1872 the Eastern New Hampshire Railroad engaged to lease the Portsmouth & Dover, when it should be completed, at 6 per cent on its cost, for sixty-five years, and as a result this road was opened February 1, 1874. It was first chartered in 1842, and again July 6, 1866. Its first cost was \$763,000, which was paid in bonds that were afterwards converted into stock. Of these the city of Portsmouth took \$300,000 and Dover \$225,000. It was well built, and is now in excellent condition, but has never done a large business. For some years its rental was so much loss to its lessor.

The openings at Rollins's, Paul's, Hill's, and Cushing's bridges were filled last year, and new Howe trusses were put in at Dover Point.

WOLFEBOROUGH RAILROAD.

Line. From Wolfeborough Junction to Wolfeborough, 12.03 miles.

History and Condition. Chartered in 1848, and opened August 19, 1872. It cost \$337,900, of which \$289,400 were paid by the Eastern Railroad, which received stock in return, and now owns all but 375 of the 3,855 shares. It is and always has been really a branch of the Great Falls & Conway, though nominally leased to the Eastern New Hampshire. For many years it did not pay operating expenses, but is doing better now. It has an iron track in good repair, and decent stations.

CONNECTICUT RIVER RAILROAD SYSTEM.

Main Line. From Springfield, Mass., to South Vernon, Vt., 50 miles. Branches: Chicopee Falls, Chicopee to Chicopee Falls, 2.35 miles; East Hampton, Mt. Tom to East Hampton, 3.50 miles. Leased: Ashuelot Railroad, from South Vernon, Vt., to Keene, N. H., 24 miles, in New Hampshire 23.2142 miles; Sullivan County Railroad, from Bellows Falls, Vt., to Windsor, Vt., 26 miles; Vermont Valley Railroad, 24 miles. Total mileage 129.85 miles, of which 49.2142 are in New Hampshire.

ASHUELOT RAILROAD.

Line. From Keene to South Vernon, Vt., 24 miles, of which 23.2 miles are in this State.

History and Condition. First incorporated December 27, 1844. Rechartered July 10, 1846. Work began upon the road in 1849, and it was opened for business January 1, 1857. It cost, including the equipment, about \$500,000, only \$441,000 of which were provided for by the sale of stock. The efforts of its managers only served to bury it deeper in debt, and many of the stockholders became alarmed lest they should be held personally responsible, and surrendered their certificates to the corporation to the amount of \$231,000, leaving only \$210,000 outstanding. In 1860 the holders of the \$200,000 in bonds that had been issued secured possession of the property and leased it to the Cheshire. A long controversy between the bondholders and the stockholders ensued and occupied the attention of the court for years, but finally the stockholders established their claim, and on the 20th of April, 1878, recovered the road. They then brought suit for the use of it while it had been operated by the Cheshire, and with the proceeds of this canceled the outstanding bonds. The

corporation was then reorganized upon the basis of \$210,000 capital, and the road was leased to the Connecticut River corporation, which pays 6 per cent on the stock for the use of it, and has brought it into most excellent condition, its road-bed, track, roadway, stations, and bridges being superior to those on any other branch road in the State. Two thirds of the track is in steel. Only ordinary repairs were made last year.

SULLIVAN COUNTY RAILROAD.

Line. From Bellows Falls, Vt., to Windsor, Vt., 26 miles.

History and Condition. The Legislature of New Hampshire chartered the Sullivan Railroad July 10, 1846. It was opened February 5, 1849, the cost being represented by \$500,000 in stock and \$854,796.93 in debts secured by mortgage bonds. After having operated two years it was surrendered to trustees for the benefit of creditors, and in 1863 was leased to the Vermont Central. In 1866, the corporation being hopelessly bankrupt, the property was sold for \$500,000 to the bondholders, who formed a new corporation under the name of the Sullivan County Railroad, and, taking possession of the road, re-leased it for ten years to the Vermont Central at \$25,000 per year. Of the stock in this new corporation, the Northern road was the principal owner. The Vermont Central continued to operate it until 1880, when the Vermont Valley Corporation purchased the stock, and it became part of the Connecticut River system.

Steel rails, 56 pounds to the yard, sound ties, 3,000 to the mile, and a deep, broad, well-surfaced road-bed, clean-cut ditches, good fences, strong bridges, and respectable stations attest the success of the recent purchasers of this road in their efforts to make it worthy of its place in a through line of great importance. Four miles of the

road-bed were raised from one to two feet last year, and the stakes are set for a continuation of this improvement, which, when completed, will relieve it of heavy grades and fit it to do a large business at small cost.

CHESHIRE RAILROAD SYSTEM.

CHESHIRE RAILROAD.

Main Line. From Ashburnham, Mass., to Bellows Falls, Vt., 53.62 miles, of which 42.81 miles are in this State. The Cheshire road uses that part of the Vermont & Massachusetts road which extends from North Ashburnham Junction to Fitchburg, 10.50 miles, for which it pays an annual rental of \$51,000, and leases the Monadnock from Peterborough to Winchendon, Mass., 15.8 miles.

History and Condition. Chartered by the New Hampshire Legislature in 1844. The part in Massachusetts was chartered as the Winchendon Railroad Corporation. Construction was begun in 1845; opened to Keene in 1848, and to Bellows Falls in 1849. Capital stock, \$2,153,300. Cost of road and equipment, \$2,717,535.26. Funded debt \$800,000, at 6 per cent.

There are no important changes to report on this road, and few are needed. Its veteran superintendent, who was one of its builders, has put upon it the impress of a steady purpose to make it stable, strong, and permanent. Its road-bed is nearly perfect, and the superstructure is first-class; its masonry is solid and enduring; its bridges sound, safe, and high; its ties in good condition, — about 3,000 to the mile, and in line on one side; its track heavy steel; its ballast fourteen feet wide, deep, and of good material; its ditches well cut and unchoked, and its roadway well grassed and clean. It is free from sharp sags, and its few curves are skillfully drawn, while its

stations are commodious and in good repair. The stations south of Keene have been repainted.

MONADNOCK RAILROAD.

Line. From Winchendon, Mass., to Peterborough, N. H., 15.8 miles, of which 13.76 miles are in this State.

History and Condition. The Monadnock Railroad was first chartered in 1848. Eighteen years later the charter was revived, and in 1869 authority was given to lease the road when completed. Construction was commenced in 1870, and the road was completed the next year. It cost \$367,701. In 1874 it was leased to the Boston, Barre & Gardner, and six years afterwards, when this company failed to meet its obligations, the Cheshire secured it at an annual rental of \$12,500 per year. This arrangement terminated some months ago, but it is still operated by the Cheshire at a reduced rental. The stock, with the exception of a few shares, is owned jointly by the Cheshire and Fitchburg. Uncertainty regarding its future has doubtless prevented costly permanent improvements upon it, and it suffers by comparison with the Cheshire main line, but its road-bed and track are fully up to the average of our branch roads, and its stations are commodious and clean. It is one of the many short roads that cannot be operated to advantage independently, and its importance consists in its being a public convenience rather than in its ability to earn dividends.

FITCHBURG RAILROAD SYSTEM.

Main Line. From Boston, Mass., to Fitchburg, Mass., 50 miles. Branches: From North Cambridge, Mass., to Waltham, Mass., 6.60 miles; from South Acton, Mass., to Marlborough, Mass., 12.42 miles; Peterborough & Shirley, from Ayer, Mass., to Greenville, N. H., 23.62

miles. Leased: Vermont & Massachusetts Railroad, from Fitchburg, Mass., to Greenfield, Mass., 56 miles; Turner's Falls branch, from Greenfield to Turner's Falls, Mass., 2.80 miles. Total, 152.12 miles.

PETERBOROUGH & SHIRLEY RAILROAD.

Main Line. From Ayer, Mass., to Greenville; N. H., 23.62 miles. Single track, iron rails.

History and Condition. Chartered in this State July 8, 1846, the authority being to build a road from the state line in Mason through New Ipswich to Peterborough; built from the state line to Greenville, a distance of 9.37 miles. Construction began in 1849 and was finished in 1851. The road was greatly embarrassed for ten years, when it was leased to the Fitchburg road for nine hundred and ninety-nine years at 6 per cent, and the New Hampshire section was thrown in as a gratuity, on condition that the road should continue to be operated. By this arrangement the road is given the same rates as the main line.

This road remains in the same condition as a year ago. It continues to give its patrons lower rates and more train service in proportion to its business than any other in the State. With a new station and engine-house at Greenville it would be beyond the reach of reasonable criticism. During the summer of 1886 the engineers of the Fitchburg road made a survey from Greenville *via* Peterborough to Claremont, a distance of about 70 miles, following a portion of the way the line of the Windsor & Forest charter. Such surveys furnish employment to educated and deserving men, are fruitful subjects of speculation in the towns through which they pass, and sometimes lead to the construction of important railroads.

GRAND TRUNK RAILROAD SYSTEM.

Main Line. From Portland, Me., to Chicago, Ill., 1,145 miles. Total length of all lines owned and leased 2,358 miles, of which 52.02 miles are in this State.

History. The Grand Trunk Railway was chartered in 1851; opened from Portland to Montreal in 1853; to Quebec in 1854; to Toronto in 1856; from Toronto to Sarnia in 1858; to Chicago in 1880. Consolidated with Great Western Railway Company August 12, 1882. Total capital invested, \$45,485,871.

ATLANTIC & ST. LAWRENCE RAILROAD.

Line. From Portland, Me., to Island Pond, Vt., 149.37 miles, of which 52.02 miles are in New Hampshire.

History and Condition. Chartered in this State June 30, 1847; in Maine February 10, 1845. Opened to Island Pond January 10, 1853. Leased to the Grand Trunk Railway Company July 1, 1853, for nine hundred and ninety-nine years, at an annual rental of 6 per cent on funded debt and capital stock, amounting to \$5,484,000 of the former and \$3,000,000 of the latter.

This road, of which little is known by most of the people of the State, is essentially English in character, solid, substantial, slow, and safe. Its road-bed is one of the best. The ballast is of excellent material and well placed, broad, deep, porous, and elastic. The rails are sixty-five-pound steel, the ties hemlock and tamarack, 2,600 to the mile, lined on one side and sound; the bridges are iron with heavy and well-laid granite supports. The fences are kept in good repair, and the space between them is clean and tidy. The semaphore signal is in use at all stations, and a system of locks prevents the escape of cars left upon sidings and consequent collisions.

We hear no complaint of the train service, which ap-

pears to be ample. The permanent improvements during the year are a neat and commodious station at Starkwater, an addition to the station at West Milan, and seven iron-plate girder bridges, from 22 to 28 feet in length, to replace wooden structures. There is need of a new station at North Stratford, of better depot accommodations at Groveton, and a larger freight-house at Berlin Falls, all of which are promised in the near future. The local business on this road is light, and when considered independently it has been operated at a heavy loss; but there has been a rapid development of the resources of the section in the last few years, which is contributing materially to a more satisfactory balance-sheet. A new paper-mill costing half a million dollars, and having a capacity of twenty tons a day, has been erected at Berlin Falls, and upon the barren ledge about it has sprung up a village whose growth is probably without parallel in the State. Eighty substantial blocks and houses were erected there last year. The mills a short distance above furnish a train-load of lumber and the copper mines at Milan a car-load of ore daily, while the mills at Stark, Starkwater, and Milan are flourishing and increasing their output, and the receipts of the road at North Stratford, Groveton, and Gorham are steadily growing.

PORTLAND & OGDENSBURG RAILROAD.

Line. From Portland to Fabyan's, 89.034 miles. From Scott's Mills to Vermont line, 2.32 miles. Length of line in New Hampshire, 40.544 miles.

History and Condition. The Portland & Ogdensburg Railroad originated in the desire of the people of Portland for a new line to the West. It was chartered in this State in 1869, with the consent of those whose interests it threatened, because they were convinced its route through the Notch was one on which a railroad

could not be built. Its construction was begun in 1870, and August 7, 1875, it was opened from Portland to Fabyan's, a distance of 89 miles. Its cost to this point exhausted its resources, including its credit, but for about ten years its trains were run over the track of the Boston, Concord & Montreal to Scott's Mills, and thence to the Vermont line.

This arrangement terminated May 3, 1885, and since that time its western terminus has been at Fabyan's. It never did a paying business, and was soon bankrupt. In 1884, upon petition of the creditors, the Supreme Court of Maine issued a decree placing it in the hands of Samuel J. Anderson, of Portland, as receiver, which was afterwards confirmed by the United States District Court for New Hampshire. It was in wretched shape when General Anderson took it as receiver, its road-bed, never a good one, badly out of repair, its bridges unsafe, its trestles frightful and dangerous, its track fit only for old iron, and most of its buildings shanties. It has been greatly improved since then, and is now in good condition. The track is now all in steel, the worst of the trestled gorges have been filled, the weakest of the wooden bridges replaced with iron, and the road-bed brought into excellent condition.

Last year "Cook cut" in Conway was completed, reducing the grade from 82.5 feet to 52.8 per mile. Seven miles of track have been raised by ballasting from three to eighteen inches. Hall's pass in Bartlett has been filled up. Six hundred yards of ledge have been taken from the bed of the Saco River to protect the bridge pier near the first crossing above Bartlett, and 500 yards of riprap placed on the banks of the Saco near the junction of the Ellis. The long single-span bridges over the Saco above Bartlett, and the bridge at Davis brook in Hart's Location, have been replaced by iron structures. Three new turn-tables have

been built, and the platforms at Crawford's, Intervale, Fabyan's, Mt. Pleasant, Bartlett, and North Conway have been repaired. Upon the whole line, since it passed into the hands of the receiver, the length of bridging has decreased nearly a mile and a half, and that of the iron bridges has increased 1,825 feet. More than 60 per cent of the bridging over openings twenty feet wide or more is now iron.

In October, 1885, the Circuit Court issued a final order in foreclosure in favor of the Mercantile Trust Company and the city of Portland, upon mortgages representing \$1,590,744, and a corporation constituted by virtue of this foreclosure, and under legislation obtained in Maine and New Hampshire, was organized in June, 1886, to take possession of the road, which it has done.

MOUNT WASHINGTON RAILROAD.*

Line. From the base of Mt. Washington to the summit, 3 miles.

History and Condition. "This road was chartered in 1858. The charter was renewed from time to time, and in 1868 construction began. The merit of originating this novel enterprise in railroad construction belongs to Herrick Aiken, of Franklin, who had conceived its possibility as early as 1850. He subsequently visited the mountain, and in 1857 he constructed a model to illustrate his idea. Mr. Aiken failing in health, Sylvester Marsh took up the project, invented the cog-wheel, and carried the enterprise forward to completion in 1872. The operative power has been improved and the liability to accident reduced to the minimum by the vigilance and skill of Walter Aiken, son of the originator, and manager of the road. The capital stock is \$129,000. The cost was \$139,000. The road has paid 9 or 10 per cent

* Report of 1886.

dividends since 1879. This road has been in operation fifteen years; 130,000 passengers have been carried, and not an accident has occurred on the road. Considering that the grade is a continuous ascent of a thousand feet to the mile, the record is remarkable, and attests the perfection of the appliances and the sleepless vigilance of the management of this unique line. The superstructure is largely renewed each year. Ties, stringers, and rails average entire renewal in five years. The cog-rail, the original still in use, shows no appreciable wear; no cog has yet been broken. The motive power now comprises seven locomotives; there are seven passenger cars, one baggage and two box cars. It is to be hoped that the present management, to whose vigilance and ingenuity the unbroken safety of this road is due, will long be continued."

PROFILE & FRANCONIA NOTCH.*

Line. From Bethlehem station, on the Boston, Concord & Montreal Railroad, to the Profile House 10 miles, and from the same point to Bethlehem street $3\frac{1}{2}$ miles, a total of $13\frac{1}{2}$ miles. Gauge, three feet.

History and Condition. "Chartered July 11, 1878; opened July 1, 1879. The road cost \$191,071.99; equipment, \$24,945.03; total, \$216,017.02. The capital stock is \$200,000. Six per cent dividends have been paid since the opening of the road, with the exception of the opening year, when 4 per cent was paid, and in 1882, when the dividend was 7 per cent. The Bethlehem branch, $3\frac{1}{2}$ miles, was constructed in 1882. Our previous commendation of this road can only be repeated. Although used for summer business only, and mainly for passenger service, the road-bed and superstructure are maintained with a completeness and thoroughness that few roads of standard gauge can claim. The road-bed is

* Report of 1886.

admirably ballasted, ties bright, and rails in perfect alignment. The roadway, although largely through a forest, is clean and tidy throughout. The attractive stations continue to be models of neatness and comfort, while the equipment is in keeping with the taste and thoroughness elsewhere displayed. Three locomotives and four passenger cars are equipped with the Westinghouse brake and Miller platform and buffer, besides two combination cars, one baggage car, and six freight cars. This road is the only narrow gauge in the State. The maximum grade on the Bethlehem branch is 231 feet; on the Profile line, 116 feet; the average per mile is 92 feet. The gauge is three feet, and the rail steel, 35 and 40 pounds. A fine iron bridge has lately been added to the superstructure."

CONCLUSION.

This report is sent to the public printer thus early in order that it may be furnished to the Legislature seasonably and according to law. It is believed to be substantially correct to-day, but railroad affairs are in a state of transition and uncertainty, and the relations of the several roads to each other and to the public are liable to be materially changed before June.

H. M. PUTNEY,

E. B. S. SANBORN,

E. J. TENNEY,

Railroad Commissioners.

CONCORD, March 15, 1887.

PART III.

COMPLAINTS AND HEARINGS.

I.

WARNER LOWER VILLAGE.

To the Railroad Commissioners of New Hampshire :

GENTLEMEN,— We, the undersigned, respectfully represent that we are citizens of Warner, residing in the Lower village, on the line of the Concord & Claremont Railroad; that the flag station of said road in said village is in a most ruinous condition, not fit for the purpose for which it was built; that there are no accommodations for passengers waiting the arrival of the trains; that the windows of said station are broken up, to the great discomfort of the patrons of the road, and danger to their health; and lastly, that great numbers get off and on the cars at this station during the summer and fall seasons.

Wherefore, we humbly pray you to take such action in the premises as by law it is your duty to do.

G. H. GEORGE and twenty-seven others.

Upon notice to the Boston & Lowell Railroad of the filing of said petition, the following letter was received by the Board, to wit:

NORTHERN DIVISION BOSTON & LOWELL RAILROAD.

SUPERINTENDENT'S OFFICE,

CONCORD, N. H., June 14, 1886.

Hon. E. B. S. SANBORN, *Clerk New Hampshire Railroad Commission :*

DEAR SIR,— Relative to the petition for repair of the station building at Warner Lower village :

To-day I had an interview with Mr. W. K. Bartlett, one of the signers of the petition, and agreed to put the building in a neat and orderly condition, which he said would be satisfactory to the public who have occasion to use the same.

Mr. Bartlett said that he and others interested would endeavor to keep it in like good condition after repairs had been made.

Respectfully,

GEO. E. TODD, *Superintendent*.

Further proceedings upon said petition were postponed.

By the Board,

E. B. S. SANBORN, *Clerk*.

II.

WEST MILAN.

To the Honorable Board of Railroad Commissioners of the State of New Hampshire :

We, the undersigned, residents and business men of West Milan station, respectfully represent to your honorable Board :

1. That our only accommodations are provided by the Grand Trunk Railway Company of Canada, a foreign corporation having their principal offices at Montreal, P. Q.

2. That the depot accommodations at said West Milan, on their said road, are not only inadequate and insufficient for the uses of it patrons and your petitioners, but because of its condition has actually become a public nuisance.

3. And that upon hearing before your honorable Board we can show beyond question its inadequacy, and the necessity of something better.

Wherefore, your petitioners pray that your honorable Board will grant them a hearing at said West Milan, at an early day, upon the matters herein set forth, and such other facts as are pertinent to the case ; at which hearing evidence of the gross and wanton neglect of the public interest and convenience by said corporation may be submitted by your petitioners for your consideration, and that you will grant such order and relief as the public necessities, the convenience, and well-being of your petitioners and the public in general may in your judgment require.

And we hereby designate A. S. Twitchell, of Gorham, as our attorney, to whom notice or other communication pertaining to the matter may be addressed.

A. A. HIGGINS and nineteen others.

WEST MILAN, N. H., December 1, 1885.

Upon due notification to the Grand Trunk Railway of the pendency of said petition, such negotiations were had between the petitioners and said railway as resulted in no further action by the Board. Further proceedings upon said petition were postponed.

By the Board,

E. B. S. SANBORN, *Clerk.*

III.

EAST KINGSTON.

STATE OF NEW HAMPSHIRE.

ROCKINGHAM, SS.

MARCH 11, 1885.

To the Selectmen of East Kingston :

We, the undersigned, legal voters of said town, respectfully represent

That the public crossing at or near the depot of the Boston & Maine Railroad in this town is a dangerous place, and needs some protection for the safety of the public.

Therefore, we petition you to make complaint and application to the Board of Railroad Commissioners of said State to examine said crossing, and if in their opinion any protection for the safety of the public is required, they may take such further action as they may deem proper.

DANA WEBSTER and thirty-nine others.

CHARLES E. MARSH,

ABEL H. TILTON,

JOHN L. PHILBRICK,

Selectmen of East Kingston.

It appearing that provision had been made that the crossing should be flagged, further proceedings were postponed.

By the Board,

E. B. S. SANBORN, *Clerk.*

IV.

CONWAY CENTRE.

CONWAY, N. H., March 23, 1886.

We, the undersigned, legal voters of the town of Conway, knowing the depot at Centre Conway, on the Portland & Ogdensburg Railroad, to be located in a place to inconvenience the whole business of the village of Centre Conway, and the traveling public that have occasion to stop at said village, and are willing to vote at any time, should it be deemed necessary, for the removal of said depot.

D. E. THOMPSON

And one hundred and seventy-seven others.

CONWAY, N. H., March 23, 1886.

We, the undersigned, legal voters of the town of Conway, believing and knowing the depot at Centre Conway, on the Portland & Ogdensburg Railroad, to be located in a place to inconvenience the whole business of the village of Centre Conway, and the traveling public that have occasion to stop at said village, and are willing to vote at any time, should it be deemed necessary, for the removal of said depot.

RICHARD S. LORD and fifty-one others.

We, the undersigned, hereby certify that we are unwilling that our names should appear on the petition to the railroad commissioners asking that the station of the Portland & Ogdensburg Railroad at Conway Centre be removed from Eastman's Bridge to Cotton's Siding. We signed the paper without having given the matter any attention, and retract whatever our signatures imply.

I. T. RANDALL and seven others.

To the Honorable Board of Railroad Commissioners for the State of New Hampshire :

The subscribers, residents of Conway, in the county of Carroll in said State, are informed that a complaint has been made to the Board

of Commissioners by the selectmen of said town upon the petition of J. P. Pitman and one hundred and three others, in which complaint it is represented that the present location of the Portland & Ogdensburg Railroad station at Centre Conway does not convenience the public.

Your petitioners hereby remonstrate and declare that there is no occasion for a change in the location of said station ; that there is no point on the line of said road east of the present site where all interests can be so well accommodated as at its present location ; that the petition filed with the selectmen does not represent fairly the interests of the traveling public or that of the business of the town.

Your petitioners further represent that the present location of said station was agreed upon by the directors of said road after a hearing by them granted and the business interests of the two villages had been fully considered, and that all of the changes of circumstances only tend to favor the present location.

We therefore pray that we may be notified of the time of the hearing upon said complaint, and be allowed to be present and represent our interests as citizens and business men.

C. W. WILDER, Treasurer of Conway Savings
Bank, and forty-eight others.

CONWAY, April 8, 1886.

PETITION DENIED.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, N. H., July 19, 1886.

PETITION FOR CHANGE OF LOCATION OF CONWAY CENTRE STATION ON THE PORTLAND AND OGDENSBURG RAILROAD.

The Board is unable to find sufficient cause for granting the petition.

This is a controversy between Conway Centre on the one side and Conway Corner on the other side, both villages in the town of Conway, as to the location of the railway station used by the people of both villages. Each village claims that the proper location of said station is that which is nearest to itself. The dispute has existed ever since the railroad was opened. The track runs along the north-erly side of the Centre village, the station being now located about

two hundred and eighty-five rods westerly of the geographical center of said village. The present location is the nearest point on the whole line of the Portland & Ogdensburg Railroad to the Corner village, which is two and one half miles westerly from said station and wholly off of this line of railroad.

The petitioners desire the station moved easterly to the Centre village, thereby reducing the distance they are now required to travel to reach it, although by such removal the distance from the Corner village to the station would be increased to nearly three and one half miles. In all the petitions, remonstrances, withdrawals from petitions, and testimony offered at the hearing, it was not suggested that two stations are needed. On the contrary, all the business transacted at the present station is so inconsiderable that a request for two stations within one mile of each other could not be seriously urged.

About four years ago this controversy between the villages about the location of the station was quite active, and for the information of the parties engaged in it an accurate record was kept of the number of passengers using the station during a year of ordinary business. Including all excursionists, the number was found to be ninety-one passengers per month, an average of three and one half passengers per day. The same record showed, and it is a fact not controverted, that nine tenths of all the passenger business of the station is best accommodated by the present location. It was further in evidence that all the income from this branch of the business of the road done at this station is less than the expense of maintaining the station. The freight business done at the station is on the same small scale, excepting the business of one party who manufactures lumber at some distance from the village, and to whose mill the railroad company has laid a track over which his freight is sent and received. The village of Conway Centre consists of a few dwelling-houses, two stores, hotel, post-office, and a town-hall erected many years ago. It was not in evidence that there had been any marked increase in its business or population since the railroad was opened, nor was there evidence from which it could be found that a change in the location of the station would stimulate the growth of the village. All the testimony at the hearing bearing upon the question of the number of buildings and the population of the Centre village came from two witnesses, both petitioners, who testified under oath. The first witness, a merchant, stated the number of inhabitants to be about seventy-five; the other witness stated that the number of buildings was forty and the number of inhabitants was two hundred.

To accommodate such business as comes to the railroad from the

Centre village, a side track has been put in and a platform erected as nearly as possible at the center of the village. All car-load lots of freight for or from the Centre village are received and sent from here, and passenger trains take and leave passengers at said platform.

The business of Conway Corner village is very much larger than that of Conway Centre, and is growing. Its freight traffic is done by the Boston & Maine Railroad, and the business relations of the place are naturally and largely with Portland. The direct passenger route from the Corner village to Portland is by the Portland & Ogdensburg road, and therefore the business portion of that village insist that the station shall remain where it is.

At the hearing, a remonstrance signed by people representing large interests in the town of Conway was presented, and their cause advocated by counsel. The town of Conway voted and paid a sum equal to 5 per cent of its valuation toward the construction of the Portland & Ogdensburg Railroad, and of this sum it is claimed that the property of the Corner village paid an amount many times larger than that paid by the property of the Centre village, and that, therefore, the demand of the business interests of Conway Corner that the station remain where it now stands is entitled to paramount consideration.

The remonstrance sets forth, and the testimony substantiated the statement, that the present location of the station was decided upon by the railroad company at the time its line was opened after a long and exhaustive hearing of all parties. It appeared at the hearing that it was placed where it now stands with the sole purpose of best accommodating the business likely to come to it, and not for the accommodation of one or two individuals, notwithstanding such rumor had obtained currency in the neighborhood occasionally in the long period of time during which this controversy has thrived. No change of circumstances was shown against the present location.

In reaching its conclusion the Board is not unmindful of the theory that placing this station squarely in the center of the Centre village will cause the village to advance vigorously in population and wealth. But we are not able to understand how any village of the size of this one can suffer seriously from the lack of railroad facilities on account of its station, which is situated within less than one mile of its center, while it has at its very door a siding upon which its car-load lots of freight are loaded, and where such loads are left within a few rods of the point of their final distribution, and whose people can get upon the passenger trains in a three minutes' walk from the center of the village; nor are we at liberty to infer, since more than

fourteen years' enjoyment of railroad facilities has made no extensive alteration in the growth of the village, that the change of this station would bring about such an era of prosperity to this village as to justify moving the station still further away from nine tenths of its patrons.

By the Board,

E. B. S. SANBORN, *Clerk.*

The undersigned cannot agree with the views of the majority of the Board, and he considers it an act of justice due to the petitioners, numbering upwards of two hundred voters in the town, to put on record the reasons for his dissent.

The case for the petitioners was this: Conway Centre is a village of forty houses and two hundred inhabitants or more, with hotel, post-office, town-house, two general merchandise stores, and a third in the course of erection. The Portland & Ogdensburg Railroad runs along the north side of the village, within twenty rods of the main street. The nearest station is located 285 rods, nearly one mile, north of the village, and has been so located since the opening of the road in 1873. At the time of the location of the station where it now is, it was a point of some traffic, having a store and some of the town offices. The store has been abandoned and there are now only scattered farm-houses in the vicinity.

There is a platform at Conway Centre, where accommodation trains stop when flagged, and where passengers without baggage are left by such trains when requested. There is also a siding for bulk freight. No tickets are sold and no baggage is checked at the platform. No mails are distributed or received there. Every business man of Centre Conway, including one gentleman who pays the road, as he testified, from six to seven thousand dollars annually, appeared as a witness and asked for the change in the location, alleging the annoyance to himself and to the traveling public of the present ill arrangement, and expressing a belief that the removal of the station to the village would stimulate its growth and add to the business of the railroad. A manufacturer who owns the water-power of Centre Conway, which is only yet partially improved, testified that "some parties object to locate on account of the distance of the station." One of the merchants testified that he paid the road about \$300 annually for freight, and if the station should be located in the village he should pay the road as much more on freight than now went by another route.

The case for the remonstrants was this: The station was located where it now is by understanding with two influential citizens, now dead, who resided in the vicinity, and materially aided the construction of the road. By its location at this point the business and citizens of Conway Corner, $2\frac{1}{2}$ miles distant, are better accommodated. By the removal of the station to Conway Centre they would be obliged to travel nearly one mile farther. Four years ago a record kept by the station-agent showed nine tenths of the passenger traffic to originate west of the station, and to be better accommodated by the station where it is than it would be by removal to Conway Centre. The railroad corporation is financially embarrassed, and does not wish to make any other outlay than that which necessity compels.

The case on its merits is this: Here is a village of "fifty houses and rising three hundred population," according to the chairman of the board of selectmen, the geographical center of a large and famous town, known throughout the country as a summer resort, which has to resort to a railroad station thrust nearly a mile away, whereby its growth is impeded, its business hampered, and its citizens universally inconvenienced. They have endured this for thirteen years to their own loss and the loss of the road, as the testimony shows. The conditions which mainly influenced the present location at the construction of the road are all broken by the death of the parties and the decay of the business about the station. The only substantial reason remaining why the station should not be located at Conway Centre is the saving of ten minutes' farther travel to the inhabitants of Conway Corner, who are located on the Portsmouth, Great Falls & Conway Railroad; who have all the advantages of a station at their own door; who do nine tenths of their business by their own road; who would be subjected to only a trifling ride farther when desiring to take a train on the Portland & Ogdensburg, and who have prospered by the convenience which a railroad station gives to a village where it is immediately accessible.

The fact that one half the voters of Conway Corner are among the petitioners and expressly recognize "the inconvenience to the whole business of the village of Conway Centre, and to the traveling public who have occasion to stop at that village," while not a remonstrant appeared from Conway Centre, and only sixty-five remonstrants altogether, sufficiently reflects the equitable aspects of the case. As it appeared from the testimony of the station-agent that the road would not suffer a dollar in its business by the removal, and that the ratio of passenger traffic has largely changed since four years ago in favor of Conway Centre, while from other testimony it appeared equally certain that the road would immediately gain

hundreds and ultimately thousands of dollars by the change, which can be done at an expense of a few hundred dollars at the most, I believe that the corporation should grant the prayer of the petitioners, or erect a station for their use in accordance with section 1, chapter 161, of the General Laws of New Hampshire: "Railroads having for their principal object the public accommodation, the proprietors thereof shall be bound to provide crossings, stations, and other facilities for the public." The village of Conway Centre has no station. Under the statute, in its own interest and in the interest of the road, the village should have a station.

O. C. MOORE, *Chairman.*

V.

OMISSION OF WHISTLING AT CROSSINGS IN NASHUA.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, July 12, 1886.

The petition of citizens of Nashua asking for omission of locomotive whistling in said city was heard, and the following is the finding of the Board, viz.:

This is a petition for the omission of the whistling warning at all crossings in the compact part of the city of Nashua, on the Worcester, Nashua & Portland division of the Boston & Maine Railroad. A hearing on said petition was held at the common council room in said city, on the 28th of June, at which several parties appeared on behalf of the petition, and none against it. On this line of road in the compact part of the city of Nashua there are seventeen crossings at grade, five of which are protected by flagmen and one by gates. Were the whistle required at each crossing by night and by day, the disturbance to the public, especially to the sick, would be great if not intolerable, but on the 21st of November, 1885, the Board made an order authorizing the omission of the whistle except on trains leaving each of the two stations and on entering the city at the first crossing. This greatly reduces the disturbance to the community, but according to the petitioners it is not sufficient. The Board sees no objection to omitting the whistle where flagmen are

employed or gates are in use. The warning cannot there be claimed to be necessary. Nor can we see adequate reason for retaining the whistle after 9 o'clock at night and before 6 o'clock in the morning, when its use does disturb the community and gives distress to the sick. Beyond this we do not believe the Board would be justified in omitting the warning. Within a few years on this road in Nashua several serious crossing accidents have occurred, two of which deprived heads of families of their lives. There was no whistle in either case. We do not know that this warning would have avoided the accident, and we do not know that it would not. The reason of the law is to prevent the loss of life from a cause that counts more victims in this State than from any other cause. It is of recent enactment, and has not yet had a fair trial. No place in the State has so many railroad crossings as Nashua, and in case of the unprotected crossings the danger is steadily increasing by the growth of the traffic and population of the city. While the public is bound to exercise constant vigilance against this class of accidents, it would be culpable in this Board to wholly relax the safeguards which the Legislature has sought to interpose for the safety of the public. The power is given to the Board to do so, but it is also given with the implied understanding that the omission of the warning shall be demanded by the balance of public safety. There is no record of serious accident from horses frightened by the locomotive whistle on this road, while the record of crossing accidents is serious and deplorable. The disturbance to the sick by the whistle will be mainly removed by its omission at night. Therefore the following order, to supersede all previous orders, is hereby made:

Ordered, That the warning whistle at all crossings on the Worcester, Nashua & Portland division of the Boston & Maine Railroad, in the compact part of the city of Nashua, be omitted between 9 o'clock at night and 6 o'clock in the morning; that it be omitted at all crossings where a flagman is employed or gates are in use, and that it be continued on all trains entering the city at the first crossing, and at the first unprotected crossing on leaving each station.

By the Board,

E. B. S. SANBORN, *Clerk.*

VI.

CROSSING ACCIDENT IN HILLSBOROUGH.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, September 9, 1886.

On Saturday, August 21, at 4.43 P. M., the passenger train which left Concord at 3.25 P. M., over the Claremont branch of the Boston & Lowell Railroad, struck a horse and carriage at the Henniker crossing, so called, in Hillsborough. The occupants of the carriage were four girls, aged respectively 8, 10, 15, and 18. The youngest child, Jessie Colby, and the horse were instantly killed, and the other girls were somewhat but not seriously injured, although hurled a distance of fifty or sixty feet. A thorough investigation of this accident showed, by the testimony of the engineer, fireman, passengers, and a pedestrian who witnessed the accident, that the required crossing warning was given. The whistle was blown four times and the bell was rung. The testimony of the two older occupants of the carriage, one of whom was driving, was that neither the whistle nor bell was heard by them, and they had no thoughts of the train, though they knew it was about due. In the direction from the north, from which they approached the crossing, it was obscured by a thick growth of bushes, so that an engine approaching from the east could not be seen until the crossing was reached. As proved by experiment with the same locomotive and engineer, the warning signals and the noise of the approaching train could be distinctly heard in the highway for a long distance from the crossing. In this case no fault can be attached to the railroad or to the employes. The cause of the accident was entire inattention to the dangers of a railroad crossing at grade. The occupants of the carriage were young people, but according to their testimony they were not pre-engaged in conversation. The carriage-top was up, but the sides were open, and it is inconceivable how the occupants failed to hear the warning signals. The required crossing sign was also in position. The accident, by which one human life was lost, and the lives of three others put in the utmost jeopardy, emphasizes anew the importance of listening for crossing signals and looking for approaching trains before entering upon a crossing. The importance of the town and road removing any bushes that obstruct the view of an approaching

train from the highway near a crossing is also plainly pointed out by this accident. On this point we believe that the existing law, which is discretionary, should be made compulsory as to the removal of all obstructing bushes.

By the Board,

E. B. S. SANBORN, *Clerk.*

VII.

COLLISION AT NASHUA.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, September 20, 1886.

At Nashua, on Sunday, September 5, at 8.27 A. M., the locomotive "Leader" was struck by the locomotive "Gen. John Stark," and considerable damage inflicted on both, but no person was seriously injured. The "Leader" had drawn an excursion train from Lawrence *via* Lowell, and delivered the same to the Concord road. At the Nashua station the Lowell locomotive was uncoupled, engineers changed, and the engineer directed by a Concord switchman to go up the track, opposite the upper end of the cross-over switch, and remain there until let out. This proved to be on the time of the morning Sunday passenger train from Concord. The engineer of the down train found the first target, at the bridge, set for him to enter the yard. On rounding the curve below the bridge he found the ball target set against him. He immediately applied the brakes and reversed, but before he could bring his train to a stop his locomotive struck the Lowell locomotive with force sufficient to hurl it backward one hundred feet or more without leaving the iron. It appeared from a full investigation of this accident that the upper target is not in use on Sundays, and no one is required to look after it. This target, therefore, has no significance on that day. From this target the lower target cannot be seen except by crossing the track to the east, the view being obstructed by the heavy foliage of a large tree. No train from the north comes in view of this target until the curve is rounded below the bridge. From this point to the position of the Lowell locomotive on Sunday morning is three hundred and forty feet. As the down train was moving at a rate not exceeding five or six miles an hour, according to the testimony of

the Concord engineer, his train should have been stopped before colliding had the engineer been thoroughly on the alert. No blame attaches to those in charge of the Lowell locomotive. The target arrangements governing trains at this point are at fault, in view of the obstruction and the curve, and the failure to make any use of the upper target on Sunday. A more responsible person than a gate-man should also be in charge on Sundays.

By the Board,

E. B. S. SANBORN, *Clerk.*

VIII.

ACCIDENT AT TILTON.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, September 25, 1886.

At twenty-five minutes past 9 o'clock, on the evening of September 4, about one half mile south of Tilton station, on the White Mountain division of the Boston & Lowell Railroad, Wallace Glines, of Northfield, was run over by express freight train No. 9, going north, and received injuries from which he died on the following day.

The engineer, John W. Buckley, observing some object lying upon the track a few feet ahead of the locomotive, while running twenty-five miles an hour, near the "Colony crossing," immediately whistled for brakes, reversed his engine, and brought the train to a stop as soon as possible. On going back to the cattle-guard on the north side of the crossing, Glines was found with his head downward in the culvert, and his hand and leg severed and crushed by the wheels of the train which had passed over them. He was carried to such place by the side of the road as could be provided, and subsequently, by direction of the surgeon, who soon arrived on the spot, conveyed to his home. He was conscious of the proceedings for his removal, but did not realize what had happened to him. It appeared that Glines was in the habit of traveling upon this track in going to his home from Tilton, and a short time before the accident had announced to one or two persons his intention of proceeding homeward that evening by that route. One person, a former neighbor, warned

him not to go upon the track that evening, on account of the condition he was in, being intoxicated.

The position in which he was found and other evidence tend to prove that he pitched headlong into the culvert while walking upon the track, and was unable to extricate himself. The engineer was positive in his statement that when first he saw Glines a few feet in front of his engine he was lying upon the track, and not standing upon it.

The evidence was overwhelming that Glines was very much intoxicated. It was also in evidence that the route which Glines traveled is a common thoroughfare for people going from Tilton village to the trotting park and fair ground on the Northfield side of the river. Such use of a railway is never without great peril. The frequent reports which reach this office of accidents to persons trespassing on railways are sufficient reason for calling public attention to this subject, and warning people of the danger of using a railway track for a highway.

By the Board,

E. B. S. SANBORN, *Clerk.*

IX.

CASE OF MRS. HECTOR FLEURIE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, November 29, 1886.

The passage-way over which the operatives of the Great Falls Manufacturing Company go to and from their work is crossed several times by the tracks of the Western Division of the Boston & Maine Railroad. On the evening of October 21, a small engine, while backing up from the switch below this passage-way, to take some cars that were standing above it, ran over and fatally injured Mrs. Hector Fleurie, who, with a number of companions, had just left the mill at the close of their day's work. It appeared in evidence, both at the coroner's inquest held the day following the accident, and at the investigation by this Board, that the engine was not moving more than three miles an hour, that it carried a light upon the rear of its tender, that its bell was being rung by the fireman,

and that Mrs. Fleurie left her husband and other companions who were waiting upon the crossing for the engine to pass, and, attempting to go around it at a point ten or twelve feet above the crossing, was struck by the tender, thrown under the wheels and crushed to death. The accident was clearly due to her own rashness in attempting to go around the moving engine instead of waiting, as did the others, until the passage was clear and safe.

By the Board,

E. B. S. SANBORN, *Clerk.*

X.

PETITION OF J. B. WALKER AND OTHERS

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 3, 1886.

Notice having been given by publication in the daily papers of Concord, a hearing was held at the office of the Commission in that city, Monday, November 29, upon the following petition:

To the Railroad Commissioners of the State of New Hampshire:

The undersigned, citizens of Concord, represent that the very painful whistling of railroad trains entering and leaving said city at frequent times during the day and night, on the north, has long been a very serious annoyance to persons residing in that part of said city, and to the sick a distressing one, causing discomfort, and an injury to their real estate. They therefore respectfully request that you will cause said whistling to be discontinued.

J. B. WALKER and thirty-three others.

CONCORD, N. H., October 11, 1886.

At the hearing, the allegations set forth in this petition were fully established by the testimony of many of the citizens of Concord, and the Commission, after a careful investigation, undertaken with a purpose to afford all possible relief from the evils complained of, without increasing the danger inseparable from the running of trains over grade-crossings and through yards at stations, has concluded

that the following changes and modifications can be safely made, and they are hereby ordered :

That the whistle in the Concord yard be reduced from two long and two short blasts to one blast of not more than two seconds.

That all whistling upon freight trains and inward-bound passenger trains south of Penacook street be abolished, and be limited to one blast of not more than two seconds, eighty rods north of Penacook street, on the Northern and Concord & Claremont roads, and to two similar blasts east of the tannery on the Boston, Concord & Montreal road.

That outward-bound passenger trains be restricted to one short blast at Ferry street and one at Penacook street, and that a flagman be kept at all hours of the day and night for the protection of the Ferry-street crossing, it being understood that nothing in this order prohibits whistling in sudden emergencies, when life or property is in danger.

It is also recommended that employes of the roads be held to a strict observance of the rules, both as to the length of the whistle and the prohibition of its unnecessary use in calling companions to duty, saluting passing trains, and otherwise aggravating the torment which the shriek of a locomotive inflicts upon many of those who are compelled to live and try to sleep in close proximity to the track ; and, secondly, that an attempt be made to produce a whistle which, while serving all purposes for which it can properly be used, shall be less shrill and shocking than those that now destroy the peace and damage the property of the residents upon North Main street in Concord.

By the Board,

E. B. S. SANBORN, *Clerk.*

XI.

ACCIDENT AT HARRISVILLE.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 6, 1886.

November 23, 1886, at Harrisville station on the Manchester & Keene Railroad, Charles M. French, aged forty-two years, fell under

the wheels of a moving passenger car and received injuries which soon resulted in death. Fifteen minutes before the train for Keene was due, French purchased a ticket for that place, and, with other passengers, awaited the arrival of the train at the Harrisville station. It drew up to the station and stopped at 11.03 o'clock A. M., left five or six passengers, took aboard as many, unloaded baggage and express parcels, after which the conductor called out "all aboard."

Looking around to see if his train was in readiness to start, and finding that it was, the conductor again called out "all aboard," and gave the motion with his hand to the engineer to start; but the engineer, being busy at that instant outside the cab, oiling the locomotive, did not start until a minute later, and not until he had returned to his place in the cab and the conductor had again called "all aboard" and again motioned him to go ahead. The entire length of the stop at the station was four minutes as kept and recorded by the station-agent, Mr. Keniston, a brother-in-law of the deceased. The conductor stepped upon the forward end of the passenger car while the train was under way, and after it had proceeded forty feet, as estimated, French came running to the same platform, jumped upon the step, and a moment later was beneath the wheels. The conductor, who was about entering the car when the noise of French's fall attracted his attention, immediately pulled the bell-cord, and the train was stopped after moving twenty feet. The weather was cold and a slight rain made the platform and steps slippery. French's venture would have been a hazardous one for an athletic man and with the best footing, but with an infirmity which never left him wholly free of lameness, and wet and slippery platform and steps to stand upon, there was but slight chance for him when he attempted to board the train. It could not be discovered why he waited so long before attempting to get aboard. Even his brother-in-law, at whose house he was visiting, could not enlighten us upon this point. It was surmised that he was busily engaged in conversation, and took his chances to get upon the car at the last moment. There is nothing peculiar about this accident. It is but the counterpart of others which this Board has investigated. It will be repeated again and again until the public thoroughly understand and act upon the knowledge so dearly bought, that it is dangerous to attempt to board or leave a railway train while it is in motion.

By the Board,

E. B. S. SANBORN, *Clerk.*

XII.

ACCIDENT AT NASHUA.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, December 6, 1886.

On the 8th day of November, as John Hunter, a brakeman, and Samuel Norman, an engineer on the W. N. & P. Division of the Boston & Maine Railroad, were walking between two tracks of that road in the city of Nashua, going to take their engine, which was standing in the yard, they were passed by another engine which was drawing a heavy freight train that had come from the Concord road, and seeing some snow on one of the cars in this train, Hunter gathered a handful and threw it at Norman, who in turn got a handful and was about to throw it at Hunter, when the latter stepped out of the space between the two tracks and upon the one parallel to that on which the train was moving, just in season to be hit, run over and killed by a freight car that had been set out of a train above, and was running down to take its place in a train that was being made up below.

The detached car carried a brakeman who was attending to the brake upon the rear end, and who testified that he saw the two men when two or three rods from them and shouted to them, but the noise from the train on the other track, which with their sport engaged their attention, prevented them from hearing him, and the smoke and steam, which was beaten down by a heavy wind, obscured the car so that neither Hunter nor Norman saw it until it had struck the former.

It does not appear that any one was at fault except these two men, whose familiarity with railroading made them heedless of the danger that is always present when a person steps upon a track, without being sure that no car or engine is liable to run him down, and permitted them to engage in boyish play at a time when they should have been protecting their lives by vigilance and care.

By the Board,

E. B. S. SANBORN, *Clerk.*

XIII.

WHISTLING AT MANCHESTER.

To the Railroad Commissioners of the State of New Hampshire :

The undersigned, citizens of Manchester, respectfully represent that the whistling of railroad trains in said city, particularly on the Portsmouth road in the early morning, is a great and, as they believe, unnecessary annoyance, that it damages the real estate in the vicinity of the road, annoys the sick, and robs the well of sleep and comfort.

They therefore ask that you cause it to be discontinued or modified.

MOODY CURRIER and sixteen others.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January 4, 1887.

In the matter of the petition of Moody Currier and others, of Manchester, setting forth that the whistling of locomotives in that city, especially upon the Portsmouth Railroad in the early morning, is a great and unnecessary nuisance, and asking that it be discontinued or modified, a hearing was held December 27 at Manchester. At this hearing it was shown that four trains leave Manchester upon the Portsmouth road daily, between the hours of 4 and 9 A. M. ; that they cross, after leaving the yard, and before reaching the Mammoth road, nine highways at grade, so that each locomotive is required to give thirty-six blasts of the whistle, making one hundred and forty-four during the time mentioned; that all these trains except the last are freights and run very slow; that all the crossings but two are unimportant and little used by the public; that several of them are so near together that a whistle at one is really a warning for two or three; and that the whistling is a serious annoyance and injury, not only to a rapidly increasing population near the track, but to citizens who reside a mile away. That there are three crossings at grade upon the Concord road near the locomotive works and in the compact part of the city, of which only the one at Bridge street is much used, the others being merely roadways leading to the mills, which are closed during the night; that four freight trains pass these between

10 o'clock P. M. and 4 A. M., requiring thirty-six blasts of the whistle, so distributed as to greatly disturb the slumbers of people in that section, and that a whistle at Bridge street is practically a warning for both the others. The Board therefore decides upon said complaint and petition, that the statutory crossing whistle is not necessary at any crossing on the Portsmouth road west of the Mammoth road between the hours of 10 P. M. and 9 A. M., except at Pine and Massabesic streets, or at any crossing on the Concord road south of Amoskeag and north of Merrimack street between the hours of 10 P. M. and 6 A. M., except at Bridge street, and it is hereby recommended that crossing whistles on the roads named be confined during the times specified to the Pine and Massabesic street crossings on the Portsmouth road west of the Mammoth road, and to the Bridge-street crossing on the Concord road between Amoskeag and Merrimack street.

It is further recommended that the legal crossing whistle, which consists of two long and two short blasts, be so reduced in Manchester that it shall not exceed six seconds in length, and that engine-men be held to a strict observance of the rules of the road relating to whistling, it being our opinion that much of the complaint on the subject arises from whistling which is outside or in excess of the requirements of the regulations by which it should be governed.

By the Board,

E. B. S. SANBORN, *Clerk.*

XIV.

ACCIDENT AT ASHLAND.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January 31, 1887.

January 5, as a freight train going north on the White Mountain division of the Boston & Lowell Railroad was leaving the highway bridge at "Green's cut," near Ashland, the fireman and conductor discovered the brakeman, George H. Straw, lying flat upon his face on the top of the forward car. They immediately went to his assistance, and found him unconscious. He was taken to Ashland, where

physicians were summoned, and in the afternoon was carried to his home in Concord, where he died at 6 o'clock that evening, having never recovered his consciousness. It appeared from the testimony of all the trainmen that Mr. Straw, as was his usual custom, got upon the engine at Meredith and rode to the top of the hill near Ashland, when he left and went back to set the brake upon the forward end of the box-car nearest the tender; that the next seen of him was when he lay outstretched upon the snow that covered the top of that car. As the brake to which he was going was not set, as it was in broad daylight, and the tell-tales one hundred and fifty feet from the bridge were in place, and as he was familiar with the road, it is to be inferred that he climbed upon the car after it had passed the tell-tales and before it reached the bridge, and was struck in the back of the head by the timbers in the bridge, receiving a blow which fractured his skull and caused his death. The bridge at Green's cut is an overhead pass for a highway. The stringers in its roof are but fifteen feet three inches above the track, or four feet above the top of an ordinary Grand Trunk box-car, such as the one on which Straw was killed. It is similar to many others in the State which constantly threaten the lives of freight-train men, but it is no worse than the law tolerates by providing for the erection of tell-tales as warnings one hundred and fifty feet on either side of them. Nevertheless, it is for the interest, and it should be the aim, of both the roads and the towns, which appear to have a joint responsibility in the matter, to remove them whenever it can be done.

By the Board,

E. B. S. SANBORN, *Clerk.*

XV.

ACCIDENT AT CONCORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, January 31, 1887.

Darby Gannon, a man nearly seventy years old, who has been employed in the shops of the Northern Railroad for thirty-eight years, was run over at ten minutes past 10 o'clock on the forenoon of January 20 by an engine in the Concord yard, receiving internal in-

juries of which he died the next day. Mr. Gannon had been to the upper end of the yard and got a broken target, which he was taking to the shop to be repaired. As he passed down the track he was observed by an engineer to be intently studying a tag upon the target, which contained instructions as to repairing it. A few seconds later he was struck by the tender of a locomotive that was backing down from the turn-table, forced forward upon his face, run over and crushed. The locomotive carried but forty pounds of steam and was moving less than four miles an hour. Its engineer and fireman were both at its windows looking out for obstructions upon the track, but Mr. Gannon walked so close to the tender that their line of vision did not include him, and they were first made aware that any one was in danger by the shouts of a switchman after the accident occurred. The engine bell was ringing at the time, but Mr. Gannon was slightly deaf, and if he had not been it would probably not have attracted his attention, as there were several other engines moving near by. From a remark he made after he was injured, it would seem that he thought he was walking upon the main track, which he knew was the only safe one at that hour of the day. We find no evidence that any one was at fault, the accident being clearly due to the victim becoming so engrossed with the tag upon the target that he unconsciously stepped upon the side track and into a position where the greatest vigilance on the part of others could not have saved him.

By the Board,

E. B. S. SANBORN, *Clerk.*

XVI.

ACCIDENT AT SUNCOOK.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, February 14, 1887.

As the morning passenger train north was crossing the bridge between Suncook station and the China Mills, February 3, the engine struck and killed G. Petit, an employe in the mills, who was going from the yard to the freight-house across the river upon an errand. The engine had just passed the three crossings below the bridge, at which the whistle had been sounded, and when Petit was discovered

upon the track some thirty feet ahead of the engine, the engineer reversed his engine, put on the brakes and blew the whistle, while the fireman rang the bell. But as Petit was quite deaf, the warning did not arrest his attention, and, although the train was stopped before going its length after he was first seen by the fireman, he was struck and instantly killed. This bridge is near a sharp curve in the road, and a coal-shed built close to the track by the China Mills so obstructs the view that an engineer cannot see the track upon the bridge until within about twenty feet of it, when going north. It is a deck bridge, high above the water, with no railing to prevent a person from falling over its sides. It would be a perilous footpath if no train ever ran over it, and a person who walks across it when a train is approaching, without exercising the greatest care, invites destruction. Yet the engine men testified at the investigation in this case that they have to whistle people from it nearly every trip, and there is other evidence showing that because it is the shortest cut from the China Mills to the village about the station, it is in almost constant use as a highway. That only one of the hundreds of trespassers upon it has recently been run over and killed cannot easily be explained, and furnishes no reason for supposing that they will be equally fortunate in future. In the case before us the trainmen did all they could to prevent the accident, and it was clearly due to the carelessness of the man who was killed.

By the Board,

E. B. S. SANBORN, *Clerk.*

XVII.

ACCIDENT AT CLAREMONT.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, February 22, 1887.

On the evening of January 8, Henry A. Bond, of Claremont, about twenty years of age, jumped from the passenger train while crossing the Windsor bridge of the Sullivan County Railroad, fell from the bridge to the ice below, about fifty feet, and was instantly killed. Bond and a companion named Fritz were at the Claremont Junction station on the evening of January 8, and as passenger train No. 23

approached the station Bond proposed to Fritz that they should get upon the rear platform of the train and ride to Windsor, and catch a ride back on a freight train that was due to leave soon after the arrival of train No. 23 at Windsor.

They boarded the train as proposed by Bond, and were not discovered by the conductor, the night being quite dark. W. M. Mansfield, a brakeman, went to arrange the lanterns on the rear platform as they were approaching the bridge, and discovered them. Bond was standing on the steps and Fritz on the platform. The brakeman invited them to come inside the car, and did not wait to see if they did so, but passed back to the front of the train and told the conductor there were two passengers in the rear car. The conductor went to look after them, and found Fritz still standing on the platform, and was informed by Fritz that Bond appeared frightened at being discovered by the brakeman, and had jumped from the train and had fallen or was thrown over the side of the bridge. Search was made for him at once, and his remains were found on the ice below the bridge where he had fallen.

By the Board,

E. B. S. SANBORN, *Clerk.*

XVIII.

ACCIDENT AT CONCORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, February 21, 1887.

As the passenger train over the White Mountain division of the Boston & Lowell Railroad, which left Concord at 9.40 on the evening of February 15, was approaching a culvert about four hundred and seventy feet north of the point where the highway leading from Concord to East Concord crosses the track, the engineer discovered a sleigh standing squarely upon the track about thirty feet in front. He stopped his train as soon as possible, but not until it had struck the sleigh and hurled it, its contents, and the horse harnessed to it across the culvert, which was twenty feet wide, and carried them some distance beyond. The sleigh was smashed into fragments, the

horse fatally hurt, and the mangled remains of a man were found under the smoking-car hung to the brake-rod by a stout stocking. This man was Charles F. Hill, a citizen of Sanbornton, who about an hour before left a stable in Concord to drive to East Concord, where he purposed to spend the night. He was so intoxicated when he started that the by-standers were obliged to help him into the sleigh, and he undoubtedly soon fell asleep and left the horse to go without guidance, as was his habit when in that condition. The imprints of the sleigh-runners and horse's feet in the snow showed plainly that the horse, upon reaching the crossing, left the highway and walked up the track, proceeding until he came to the culvert, where he stopped and stood still until the train overtook him. As neither the engineer nor fireman could see any man in the sleigh when they first discovered it, it is probable that Hill had slipped from the seat and lay asleep in the bottom when he was struck and killed.

There is no charge of neglect of duty on the part of any railroad employe. The regulation whistle was sounded before the train, which was not running more than twelve miles an hour, reached the crossing. The man in charge of the crossing was at his post with a lantern when the train went by, and the engineer and fireman did their utmost to stop the engine as soon as the obstruction upon the track was discovered. That they did not see it sooner was due to a curve in the track, which threw the head-light to one side until it was near the culvert, but if it had been upon a straight line the result would have been equally fatal. The accident simply adds another to the victims of intemperance.

By the Board,

E. B. S. SANBORN, *Clerk.*

XIX.

ACCIDENT AT TILTON.

STATE OF NEW HAMPSHIRE,

IN BOARD OF RAILROAD COMMISSIONERS.

CONCORD, February 21, 1887.

On the morning of February 8, the trackmen upon the Tilton section of the White Mountain division of the Boston & Lowell Rail-

road, upon going to work, found upon the track the dismembered and frozen body of a man. It proved to be the remains of Joseph McCunin, of Montreal, who left a situation in Boston to go to his home the day before. Nothing can be learned of him from the time he left Boston until his body was found, as neither the trainmen nor any of the passengers, so far as we can discover, recollect seeing him. It is supposed that he was a passenger upon the Central Vermont section of the train that left Concord at 9 o'clock P. M., February 7, and, in attempting to pass from one car to another, fell between the platforms, was run over and killed. His body was evidently dragged some distance by the cars of the train from which he fell, and was afterwards struck and carried still farther up the track by the engine of a later train, upon which pieces of his clothing were found when it reached Woodsville. But in the darkness of the night he was seen by no one, and there is no direct evidence as to how his death occurred.

By the Board,

E. B. S. SANBORN, *Clerk.*

XX.

ACCIDENT AT TILTON.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, February 7, 1887.

Freighttrain No. 2, moving south from Tilton station on the White Mountain division of the Boston & Lowell Railroad, February 7, 1887, at 9.15 o'clock A. M., struck and instantly killed Chellis Sargent, an aged resident of Tilton.

Mr. Sargent was using the railroad for a highway, traveling upon the side track towards the passenger station and towards the approaching train, and when nearly opposite the latter he stepped from the siding to the main track directly in front of the locomotive. It is conjectured that he mistook the track upon which the train was moving to meet him and sought to avoid it by changing to the main line, or that, absorbed in his own thoughts, he did not notice it. Had the train been moving behind him instead of in front of him, his deafness would furnish a satisfactory reason for his

neglect to save himself. The fireman saw him upon the siding and in a perfectly safe position until he turned abruptly across the six or eight feet of intervening ground in front of the train.

The use of the track near this place for a highway has been the cause of several fatal accidents. We renew our warning against the practice which prevails in this locality of making a highway of a railroad track.

By the Board,

E. B. S. SANBORN, *Clerk.*

XXI.

FATAL ACCIDENT AT CONCORD.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

CONCORD, March 7, 1887.

James J. Murtaugh, who was employed nights in the engine-house of the Northern Railroad, started from his home in the southerly part of Concord, on the evening of February 16, to go to his work, and, instead of walking up the street, took the railroad track. When a short distance below the passenger station his attention was attracted by a Northern engine that was passing down through the yard, and while looking at that he stepped backward upon a track on which a Concord engine had just started to back up and take a train, just in season to be struck by the tender, thrown under the wheels and killed. This Concord engine was moving very slowly at the time, and did not run its length after the tender struck Mr. Murtaugh before it was stopped. The men upon it had no reason to suppose that he would leave the space between the tracks and step into danger, and were in no way responsible for the accident which cost him his life.

By the Board,

E. B. S. SANBORN, *Clerk.*

XXII.

FATAL ACCIDENT AT NASHUA.

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS,

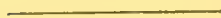
CONCORD, March 7, 1887.

Archibald L. Miller, a citizen of Nashua, accompanied his wife to the station, where she took the train for Groton, Mass., at 8.45, February 23. A few moments after the train left, he was discovered about three hundred feet from the station fatally injured, having been run over by the cars. He explained to those who went to his assistance that he jumped from the train after it started; and the testimony of the trainmen was that he entered the car, secured a seat for his wife, gave her some money, and started back toward the rear of the train, passing, as he went out of the door, the brakeman, who supposed he was going to the smoking-car. No one saw him afterward until he was hurt; but on reaching the platform he undoubtedly jumped to the ground, and either slipped upon the ice or was whirled under the wheels. He died the next morning. The train was not running rapidly at the time, having just left the station, and the accident is another illustration of the risk which any one takes in leaving a moving car.

By the Board,

E. B. S. SANBORN, *Clerk.*

PART IV.



TABLES.

[illegible]

STATEMENT OF CAPITAL STOCK, DEBT, CASH ASSETS, INTEREST ACCRUED, AND DIVIDENDS PAID, FOR
THE YEAR ENDING SEPTEMBER 30, 1886.

RAILROADS.	Capital stock.	Funded debt.	Unfunded debt.	Total debt.	Cash assets.	Net debt.	Net cash assets.	Interest accrued.	Dividends paid.	Rate.
Ashuelot	\$210,000.00	.....	\$6,772.23	\$6,772.23	\$18,607.09	.....	\$11,834.86	\$111.55	\$16,800.00	.08
Atlantic & St. Lawrence.....	5,484,000.00	\$3,000,000.00	.....	3,000,000.00	.....	\$3,000,000.00	.....	480,684.80	.....	.....
Boston & Lowell.....	5,129,400.00	4,346,400.00	1,549,595.22	5,895,995.22	2,257,363.45	3,638,631.77	.....	253,084.27	290,133.00	.06
Boston, Concord & Montreal	1,800,000.00	3,071,600.00	29,578.39	3,101,178.39	567,540.68	2,533,637.71	.....	213,860.65	38,440.00	.05
Concord & Claremont (N. H.).....	412,400.00	500,000.00	254,245.72	754,245.72	63,900.35	690,345.37	.....	35,000.00	.....	.....
Nashua & Lowell.....	800,000.00	300,000.00	40,468.50	340,468.50	352,074.17	.....	11,605.67	17,585.89	56,000.00	.07
Northern.....	3,068,400.00	.....	1,061,325.22	1,061,325.22	1,224,401.66	.....	163,076.44	.....	179,838.00	.06
Pemigewasset Valley.....	503,400.00	.....	.....	.....	705.84	.....	705.84	.....	30,204.00	.06
Peterborough.....	385,000.00	54,500.00	201,459.54	255,959.54	.....	255,959.54	.....	.....	11,550.00	.03
Peterborough & Hillsborough.....	45,000.00	165,000.00	53,882.27	218,882.27	54,583.83	164,298.44	.....	10,725.00	.....	.....
Wilton.....	240,000.00	.....	990.75	990.75	1,521.97	.....	531.22	.....	16,800.00	.07
Boston & Maine	7,000,000.00	4,426,000.00	2,086,861.89	6,512,861.89	3,260,067.06	3,252,794.83	.....	289,933.71	595,000.00	.085
Dover & Winnepesaukee.....	480,000.00	.....	.....	.....	623.75	.....	623.75	.....	28,800.00	.06
Eastern (in N. H.)	492,500.00	.....	2,707.21	2,707.21	785,327.99	.....	782,620.78	.....	22,162.50	.045
Portsmouth & Dover.....	769,000.00	.....	621.00	621.00	4,123.75	.....	3,502.75	.....	46,140.00	.06
Portsmouth, Gt. Falls & Conway..	1,150,300.00	1,000,000.00	1,518.75	1,001,518.75	2,236.43	999,282.32	.....	45,000.00	.....	.....
West Amesbury Branch.....	57,000.00	57,000.00	150.00	57,150.00	323.22	56,826.78	.....	3,990.00	1,140.00	.02

Wolfeborough	385,500.00	.....	96.00	96.00	96.00	.....	.....	.....	23,130.00 .06
Worcester, Nashua & Rochester..	3,099,800.00	1,662,000.00	67,547.50	1,729,547.50	115,474.58	1,614,672.92	.....	82,991.04	91,869.00 .03
Cheshire.....	2,153,300.00	800,000.00	50,999.00	850,999.00	382,005.51	468,933.49	.....	48,000.00	105,000.00 .05
Monadnock	205,400.00	52,000.00	2.00	52,002.00	2,570.07	49,431.93	.....	2,839.75	.....
Concord	1,500,000.00	.....	339,150.87	339,150.87	254,485.01	84,665.86	.....	.....	150,000.00 .10
Concord & Portsmouth	350,000.00	.....	.....	.....	1,984.35	.....	1,984.35	.....	24,500.00 .07
Manchester & Lawrence.....	1,000,000.00	.....	7,274.50	7,274.50	106,739.76	.....	99,525.26	.....	100,000.00 .10
Manchester & North Weare.....	200,000.00	.....	.....	.....	.....	.....	.....	.....	.....
Nashua, Acton & Boston.....	500,000.00	500,000.00	462,482.90	962,482.90	6,257.41	956,225.49	.....	30,225.51	.....
Suncook Valley.....	341,700.00	.....	.....	.....	2,327.49	.....	2,327.49	.....	14,400.00 .06
Fitchburg	5,286,600.00	5,140,600.00	1,857,051.20	6,997,651.20	2,968,423.42	4,029,227.78	.....	260,763.00	264,330.00 .05
Mount Washington.....	129,500.00	.....	10,000.00	10,000.00	15,732.60	.....	5,732.60	600.00	12,050.00 .10
Portland & Rochester.....	591,357.19	.....	.....	.....	69,032.09	.....	69,032.09	.....	29,516.97 .05
Portland & Ogdensburg.....	1,052,185.55	.....	.....	.....	.....	.....	.....	.....	.....
Profile & Franconia Notch.....	200,000.00	.....	.....	.....	2,292.94	.....	2,292.94	.....	8,000.00 .04
Sullivan County	500,000.00	.....	177,101.44	177,101.44	118.93	176,982.51	.....	12,810.17	40,000.00 .08
Whitefield & Jefferson.....	170,000.00	.....	.....	.....	1,900.51	.....	1,900.51	.....	10,200.00 .06
Totals	\$45,691,742.74	\$25,075,100.00	\$8,261,882.10	\$33,336,982.10	\$12,522,961.91	\$21,971,316.74	\$1,157,296.55	\$1,788,205.34	\$2,206,903.47

MILEAGE AND COST OF

RAILROADS.	Main line of road.	Same in New Hampshire.	Double track.	Same in New Hampshire.	Branches owned.	Same in New Hampshire.	Double track on branches.
Ashuelot.....	24.00	23.21	.....	.....	.....	.....	.....
Atlantic & St. Lawrence.....	149.37	52.02	.....	.....	.....	.....	.....
Boston & Lowell.....	26.75	.....	26.75	.....	71.34	.....	15.45
Boston, Con. & Montreal...	145.88	145.88	.....	.....	20.39	20.39	.....
Concord & Claremont (N.H.)	56.00	56.00	.....	.....	14.90	14.90	.....
Manchester & Keene.....	29.59	29.59	.....	.....	.....	.....	.....
Nashua & Lowell.....	14.50	5.25	14.50	5.25	.....	.....	.....
Northern.....	69.50	69.50	.....	.....	13.41	13.41	.....
Pemigewasset Valley.....	20.05	20.05	.....	.....	.....	.....	.....
Peterborough.....	10.50	10.50	.....	.....	.....	.....	.....
Peterboro' & Hillsborough	18.50	18.50	.....	.....	.....	.....	.....
Wilton.....	15.50	15.50	.....	.....	.....	.....	.....
Boston & Maine.....	115.50	34.75	70.96	14.89	8.50	2.75	1.00
Dover & Winnepesaukee....	29.00	29.00	.....	.....	.....	.....	.....
Eastern (in N. H.).....	16.08	16.08	5.94	5.94	.....	.....	.....
Portsmouth & Dover.....	10.88	10.88	.....	.....	.....	.....	.....
Port., Gt. Falls & Conway..	72.86	69.94	.....	.....	.....	.....	.....
West Amesbury Branch....	4.45	2.32	.....	.....	.....	.....	.....
Wolfeborough.....	12.03	12.03	.....	.....	.....	.....	.....
Worc., Nash. & Rochester..	94.48	55.02	18.13	.....	.....	.....	.....
Cheshire.....	53.62	42.81	.....	.....	.....	.....	.....
Monadnock.....	15.80	13.76	.....	.....	.....	.....	.....
Concord.....	34.53	34.53	34.53	34.53	2.50	2.50	.....
Concord & Portsmouth....	40.50	40.50	.....	.....	7.00	7.00	.....
Manchester & Lawrence....	22.39	22.39	.....	.....	.....	.....	.....
Manchester & No. Weare...	19.00	19.00	.....	.....	.....	.....	.....
Nashua, Acton & Boston...	20.21	4.75	.....	.....	.....	.....	.....
Suncook Valley.....	17.37	17.37	.....	.....	.....	.....	.....
Fitchburg.....	50.00	.....	50.00	.....	83.57	9.37	.68
Mount Washington.....	3.33	3.33	.....	.....	.....	.....	.....
Portland & Rochester.....	52.50	3.50	.....	.....	.....	.....	.....
Portland & Ogdensburg.....	91.35	40.54	.....	.....	.....	.....	.....
Profile & Franconia Notch...	13.33	13.33	.....	.....	.....	.....	.....
Sullivan County.....	26.00	25.81	5.42	5.42	.....	.....	.....
Whitefield & Jefferson ..	10.68	10.68	.....	.....	2.68	2.68	.....
	1,406.03	968.32	226.23	66.03	224.29	73.00	17.13

ROADS AND EQUIPMENT.

Sidings and other tracks.	Same in New Hampshire.	Total length computed as single track.	Same in New Hampshire.	Other roads operated.	Same in New Hampshire.	Total road operated.	Same in New Hampshire.	Cost of road and equip- ment.
3.79	3.48	27.79	26.69	.....	.....	24.00	23.21	\$237,856.25
32.75	9.45	182.12	61.47	.....	.....	149.37	52.02	2,960,916.00
54.61	.....	194.90	.....	619.15	421.05	717.24	421.05	7,839,382.21
17.20	17.20	183.47	183.47	.....	.....	.....	.....	4,926,850.87
7.75	7.75	78.65	78.65	.....	.....	.....	.....	1,131,206.38
3.00	3.00	32.59	32.59	.....	.....	.....	.....	182,436.00
6.08	1.95	35.08	12.45	.....	.....	.....	.....	909,535.02
16.50	16.50	99.41	99.41	.....	.....	.....	.....	3,068,400.00
.37	.37	20.42	20.42	.....	.....	.....	.....	502,999.75
1.00	1.00	11.50	11.50	.....	.....	.....	.....	588,950.00
1.44	1.44	19.94	19.94	.....	.....	.....	.....	209,298.44
2.24	2.24	17.74	17.74	.....	.....	.....	.....	242,600.00
94.22	20.01	290.18	72.40	462.40	195.20	583.65	232.70	10,929,117.63
3.72	3.72	32.72	32.72	.....	.....	.....	.....	480,000.00
10.51	10.51	32.53	32.53	.....	.....	.....	.....	780,535.36
2.00	2.00	12.88	12.88	.....	.....	.....	.....	768,400.00
10.14	8.58	83.00	78.52	.....	.....	.....	.....	2,150,300.00
.49	.38	4.94	2.70	.....	.....	.....	.....	114,000.00
.80	.80	12.83	12.83	.....	.....	.....	.....	385,500.00
20.10	7.60	132.71	62.62	.....	.....	.....	.....	4,553,921.02
17.01	13.84	70.63	56.65	15.80	13.76	69.42	56.57	2,717,535.26
.70	.70	16.50	14.46	.....	.....	.....	.....	367,701.26
37.54	37.54	109.10	109.10	104.08	89.62	141.11	125.65	1,500,000.00
8.58	8.58	56.08	56.08	.....	.....	.....	.....	350,000.00
3.38	2.52	25.77	24.91	3.75	.....	26.14	22.39	1,000,000.00
1.63	1.63	20.63	20.63	.....	.....	.....	.....	200,000.00
2.00	1.00	22.21	5.75	.....	.....	.....	.....	1,057,031.20
1.80	1.80	19.17	19.17	.....	.....	.....	.....	348,199.19
83.07	1.41	267.32	10.78	95.80	.....	229.37	9.37	8,354,453.90
.....	.....	3.33	3.33	.....	.....	3.33	3.33	139,500.00
9.76	.79	62.26	4.29	.....	.....	52.50	3.50	591,357.19
21.00	8.00	112.35	48.54	.....	.....	91.35	40.54	4,425,504.92
.....	.....	13.33	13.33	.....	.....	13.33	13.33	216,017.02
4.49	4.49	35.91	35.72	.....	.....	26.00	25.81	701,223.38
2.66	2.66	16.02	16.02	.....	.....	13.36	13.36	189,504.39
482.33	202.94	2,356.01	1,310.29	1,300.98	719.63	2,140.17	1,042.83	\$65,120,232.64

RECEIPTS AND EXPENSES FOR THE YEAR ENDING SEPTEMBER 30, 1886.

RAILROADS.	Receipts from passenger department.	Receipts from freight de- partment.	Rents for road.	Income from other sources.	Total income.	Expenses and taxes.	Net income.	Rents paid.
Ashuelot.....	\$18,863.08	\$2,743.68	\$21,606.76	\$2,879.84	\$18,726.92	.....
Atlantic & St. Lawrence.....	480,684.80	.....	480,684.80	.....	480,684.80	.....
Boston & Lowell.....	\$1,990,090.33	\$2,500,122.44	.....	138,173.77	4,628,386.54	3,354,645.84	1,273,740.70	\$718,568.86
Boston, Concord & Montreal.....	297,500.00	8,602.33	306,102.33	16,435.75	289,666.58	30,204.00
Concord & Claremont.....	35,000.00	.....	35,000.00	.....	35,000.00	.....
Manchester & Keene.....
Nashua & Lowell.....	65,000.00	18,514.79	83,514.79	5,603.39	77,911.40	.....
Northern.....	153,420.00	54,254.32	207,674.32	10,785.15	196,889.17	.....
Pemigewasset Valley.....	30,504.00	.....	30,504.00	168.90	30,335.10	.....
Peterborough.....	35,813.54	.....	35,813.54	258.94	35,554.60	.....
Peterborough & Hillsborough..
Wilton.....	16,950.00	.....	16,950.00	12.25	16,937.75	.....
Boston & Maine.....	4,324,116.31	2,929,766.07	22,403.79	267,405.13	7,543,691.30	4,767,299.84	2,776,391.46	1,786,457.75
Dover & Winnepesaukee.....	29,000.00	1,393.35	30,393.35	388.13	30,005.22	.....
Eastern (New Hampshire).....	22,500.00	113.50	22,613.50	466.50	22,147.00	.....
Portsmouth & Dover.....	46,140.00	.....	46,140.00	.....	46,140.00	.....

Portsmouth, Gt. Falls & Conway	.....	45,000.00	69.32	45,069.32	.....	45,069.32	.....
West Amesbury Branch	.....	5,700.00	.....	5,700.00	588.65	5,111.35	.....
Wolfeborough	.....	23,130.00	.....	23,130.00	.....	23,130.00	.....
Worcester, Nashua & Rochester	53,715.49	187,500.00	12,708.52	369,042.36	104,528.59	264,513.77	.....
Cheshire	195,360.34	.....	33,430.27	660,824.62	417,401.76	243,422.86	63,750.00
Monadnock	.....	12,750.00	.....	12,750.00	62.00	12,688.00	.....
Concord	439,802.38	.....	10,670.76	1,119,694.72	845,523.04	274,171.68	121,602.25
Concord & Portsmouth	.....	25,000.00	.....	25,000.00	355.25	24,644.75	.....
Manchester & Lawrence	80,285.02	52,102.94	3,574.40	175,262.33	60,301.30	114,961.03	11,000.00
Manchester & North Weare	16,289.16	.....	.....	34,488.81	28,491.92	5,996.89	.....
Nashua, Acton & Boston	.....	5,500.00	.....	5,500.00	.....	5,500.00	.....
Suncook Valley	.....	14,700.00	.....	14,700.00	288.12	14,411.88	.....
Fitchburg	1,183,961.55	51,000.00	86,135.37	3,399,542.48	2,559,664.99	839,877.49	256,480.00
Mount Washington	30,416.59	.....	533.58	31,202.17	14,580.14	16,622.03	.....
Portland & Rochester	80,211.85	.....	1,125.79	191,503.06	148,909.03	42,594.03	.....
Portland & Ogdensburg	145,891.17	.....	32,215.22	393,591.52	239,594.12	153,997.40	.....
Profile & Franconia	20,431.47	.....	2.42	20,643.14	10,351.82	10,291.32	.....
Sullivan County	76,542.63	.....	270.00	231,462.32	169,790.14	61,672.18	3,600.00
Whitefield & Jefferson	3,005.34	.....	1,539.33	33,109.11	27,345.31	5,763.80	.....
	\$8,640,119.63	\$1,676,162.15	\$673,475.85	\$20,281,291.19	\$12,786,720.71	\$7,494,570.48	\$2,991,662.86

NUMBER OF STOCKHOLDERS AND AMOUNT OF STOCK
HELD IN NEW HAMPSHIRE FOR THE YEAR ENDING
SEPTEMBER 30, 1886.

RAILROADS.	Total num- ber of stock- holders.	Num ber of stock- holders in N. H.	Stock held in New Ham p- shire.
Ashuelot	29	4	\$69,100.00
Atlantic & St. Lawrence.....			
Boston & Lowell.....	1,451	86	207,500.00
Boston, Concord & Montreal.....	1,791	1,230	1,187,400.00
Concord & Claremont.....	11	10	12,400.00
Manchester & Keene.....			
Nashua & Lowell.....	421	190	248,400.00
Northern.....	2,235	1,079	844,000.00
Pemigewasset Valley.....	173	128	348,700.00
Peterborough.....	285	267	273,300.00
Peterborough & Hillsborough.....	2		
Wilton.....	259	238	238,000.00
Boston & Maine.....	4,038	1,171	1,388,400.00
Dover & Winnepesaukee.....	137	107	234,200.00
Eastern.....	403	218	300,800.00
Portsmouth & Dover.....	159	149	751,500.00
Portsmouth, Great Falls & Conway..	440	85	127,000.00
West Amesbury Branch.....	31	2	700.00
Wolfeborough.....	84	66	27,300.00
Worcester, Nashua & Rochester.....	818	205	339,500.00
Cheshire.....	452	44	387,300.00
Monadnock.....	4	3	103,000.00
Concord.....	1,279	818	1,124,500.00
Concord & Portsmouth.....	231	201	321,300.00
Manchester & Lawrence.....	675	416	626,300.00
Manchester & North Weare.....			
Nashua, Acton & Boston.....	188	104	
Suncook Valley.....	135	132	233,500.00
Fitchburg.....	3,064	233	248,800.00
Mount Washington... ..	30	21	80,000.00
Portland & Rochester.....	96	3	1,100.00
Portland & Ogdensburg.....			
Profile & Franconia Notch.....	63	48	153,000.00
Sullivan County.....	9		
Whitefield & Jefferson.....	11	6	53,200.00
	19,004	7,264	\$9,930,200.00

AVERAGE FARES.

Below we give the average rate of fare per mile, not including season tickets for local passengers, on ten railroads; also the average rate of fare per mile received from passengers to and from other roads, the average rate of fare per mile for season-ticket passengers, and the average rate of fare per mile received from all passengers.

RAILROAD.	Average rate of fare per mile for local passengers.	Average rate of fare per mile from pas- sengers to and from other roads.	Average rate of fare per mile for season- ticket passengers.*	Average rate of fare per mile from all passengers.
Atlantic & St. Lawrence .	3.61 cts.	2.33 cts.	1.25 cts.	2.93 cts.
Boston & Lowell	2.21	2.23	.65	2.06
Boston & Maine	2.14	1.69	.73	1.80
Cheshire	3.50	3.20	1.50	3.10
Concord	2.80	1.72	.50	2.38
Manchester & Lawrence .	3.04	1.90	1.35	2.77
Fitchburg	1.73	1.76	.66	1.75
Portland & Rochester . .	.....	3.50	1.00	2.50
Sullivan County	3.00	2.63	.16	2.32
Whitefield & Jefferson . .	3.75	6.12	.....	5.00

* Reckoning twelve passengers per week for time of each season ticket.

AVERAGE FREIGHTS.

Below we give the average rate of local freight per ton per mile, as per tariff rates, on nine railroads; also the average rate of freight per ton per mile received from freight to and from other roads, and the average rate of freight per ton per mile received from all freight.

RAILROAD.	Average rate of local freight per ton per mile.	Average rate of freight per ton per mile received from freight to and from other roads.	Average rate per ton per mile received from all freight.
Atlantic & St. Lawrence .	1.62 cts.	.59 cts.	.70 cts.
Boston & Lowell	2.76	1.20	1.67
Boston & Maine	2.78	1.56	2.27
Cheshire	5.00	1.19	1.24
Concord	3.12	1.00	1.74
Manchester & Lawrence .	3.58	.39	2.98
Fitchburg	2.53	.81	1.07
Sullivan County	6.32	.88	.091
Whitefield & Jefferson . .	11.33	17.25	11.50

RECEIPTS AND EXPENSES.

The following aggregates and percentages are those of all the roads making returns to this Board.

Year.	Gross Income.	Increase or Decrease.	Per cent.
1883	\$14,181,292.01	.....	.....
1884	13,932,563.62	— \$248,728.39	1.75
1885	17,989,140.10	+ 4,056,576.48	29.12
1886	20,281,291.19	+ 2,292,151.09	12.75

The increase of the year 1886 over the year 1883 is \$6,099,999.18, or 43.01 per cent.

Year.	Expenses, Taxes, and Rents paid.	Increase or Decrease.	Per cent.
1883	\$10,965,952.84	.....	.....
1884	10,679,057.41	— \$286,895.43	2.60
1885	14,225,966.04	+ 3,546,908.63	33.21
1886	15,778,383.57	+ 1,552,417.53	10.91

The increase of the year 1886 over the year 1883 is \$4,812,430.73, or 43.88 per cent.

Year.	Net Income.	Increase or Decrease.	Per cent.
1883	\$3,215,339.17	.....	.....
1884	3,253,506.21	+ \$38,167.04	1.19
1885	3,763,174.06	+ 509,667.85	15.66
1886	4,502,907.62	+ 739,733.56	19.66

The increase of the year 1886 over the year 1883 is \$1,287,568.45, or 40.04 per cent.

Year.	Gross Income.	Expenses, Taxes, and Rents paid.	Per cent of Expense to Gross Income.
1883	\$14,181,292.01	\$10,965,952.84	77.33
1884	13,932,563.62	10,679,057.41	76.65
1885	17,989,140.10	14,225,966.04	79.09
1886	20,281,291.19	15,778,383.57	77.80
4 years.	\$66,384,286.92	\$51,649,359.86	77.80

Boston & Lowell.....	Mr. Landre.....	Crawled under passenger car.....	Jan.	14, 1886	Instantly killed when train started (suicide)	Nashua.
"	James Staples....	Jumped from passenger car (not a passenger)	Feb.	1, 1886	Fatally injured.	nr. E. Andover
"	Mr. Webster.....	Walking on track, struck by locomotive (intoxicated).....	Feb.	6, 1886	Not seriously injured.....	Tilton.
"	Jas. E. Sheehan..	Arm crushed, coupling cars.....	Feb.	10, 1886	Injured	Concord.
"	Joseph Probins..	(Intoxicated) Attempting to board passenger train, fell, and foot crushed by wheels.....	Feb.	1886	Foot crushed.	Hillsboro' Br.
"	Wallace Smith....	Walking on track, run over by train	Feb.	20, 1886	Lost a leg.....	nr. Wilton.
"	J. S. Greeley.....	Injured by fall of door from freight car.....	March 3, 1886	Injured	Franklin.	
"	Henry Williams..	Walking on track, struck by locomotive (intoxicated).....	May	6, 1886	Instantly killed	Lisbon.
"	Geo. W. Bayson..	Fell from freight car.....	June 23, 1886	Fatally injured	Marlboro'.	
"	B. D. Brown.....	Hand injured, coupling engine to train.....	July 23, 1886	Hand injured.	W. Lebanon.	
"	John Aldrich.....	Fell from moving train.....	Aug. 11, 1886	Fatally injured	near Warren Summit.	
"	Jessie Colby.....	Attempting to cross track in a carriage about a mile north of Hillsborough Bridge.....	Aug. 21, 1886	Killed.....	Hillsboro' Br.	
"	Nora Colby.....	Attempting to cross track in a carriage about a mile north of Hillsborough Bridge.....	"	"	Injured	"
"	Blanche Colby...	Attempting to cross track in a carriage about a mile north of Hillsborough Bridge.....	"	"	"	"
"	Nellie Flanders...	Attempting to cross track in a carriage about a mile north of Hillsborough Bridge.....	"	"	"	"
"	Geo. O. Robinson.	Attempting to board a moving train, thrown under wheels.....	Aug. 23, 1886	Lost a leg.....	E. Concord.	
"	Charles Evans....	Injury to hand, coupling cars.....	Aug. 30, 1886	Hand injured.	Concord.	
"	W. C. Walker.....	Injured, caught between freight car and switch frame	Sept. 3, 1886	Injured	"	
"	Wm. M. Ordway..	Fell from roof of bridge.....	Sept. 10, 1886	Lastantly killed	Claremont.	
"	Wallace Glines..	Walking on track, struck by train (intoxicated)	Sept. 14, 1886	Killed	nr. E. Tilton.	
"	Thomas Higgins..	Injured, uncoupling freight cars....	Sept. 23, 1886		Peacock.	
Boston & Maine.....	John Hamil	Trespasser. Suppose struck by night freight.....	Nov. 19, 1885	Killed	Pownow Riv.	

STATEMENT OF ACCIDENTS REPORTED IN NEW HAMPSHIRE FOR YEAR ENDING SEPT. 30, 1886.—*Con.*

RAILROADS.	Name of Person.	Occupation.	Cause of Accident.	Date.	Character of Injury.	Place.
Boston & Maine.....	J. E. Littlefield...	Brakeman..	Hand crushed coupling cars.....	Dec. 1, 1885	Hand crushed	Greenland.
"	James C. White...	Employé...	Coupling cars, caught his foot in a frog.....	Dec. 2, 1885	Killed.....	nr. Portsmouth.
"	James Rollins....	Passenger..	Fell under the wheels, attempted to get upon a moving train.....	Dec. 7, 1885	17 ft foot cut off	E. Kingston.
"	C. Champion	Sec.-forem'n	Fell on the track when attempting getting out the way of moving freight.....	Jan. 22, 1886	Cut off his leg	Milton.
"	E. M. Hazeltine ..	Brakeman..	Fell under a moving train.....	Feb. 7, 1886	Foot badly jammed	nr. Hampton.
"	Calvin S. Haines..	" ..	Struck by a timber falling from a car	Feb. 9, 1886	Arm fractured	Ossipee Cent.
"	A. L. Whitney....	" ..	Fell from top of moving freight, run over.....	Feb. 17, 1886	Died.....	nr. N. Wakefield
"	Stephen E. Jones	Employé....	Coupling cars, slipped, broke one leg.....	Feb. 19, 1886	Broken leg...	Portsmouth.
"	James Clark.....	Trespasser.	Run over and killed by an engine, lying upon track leading to engine-house.....	July 8, 1886	Killed.....	"
"	John Brown.....	" ..	Occupants of a buggy, reputed to being intoxicated, attempted to cross track in advance of train, were struck, woman killed, man seriously bruised... ..	July 28, 1886	Sev'ly bruised	Union.
"	Mrs. A. Walker...	" ..	Jumped from train after it started, and fell.....	Aug. 23, 1886	Killed.....	Dover.
"	E. F. Nute.....	Passenger..	On the track, both legs cut off by engine on way to engine-house...	Aug. 27, 1886	Both legs cut off.....	Portsmouth.
"	Timothy Sullivan	Trespasser.	Injured coupling cars.....	Nov. 6, 1885	Not seriously injured.....	Hampstead.
Worce., Nashua & Roch.	Patrick Keating..	Fr't cond'r..	Killed at Ash-street crossing, falling in front of switch engine, cars and engine passing over his body	Nov. 20, 1885	Killed.....	Nashua.
"	James Coffey.....	" ..	Jumped from moving passenger train, died from injuries.....	May 14, 1886	Died.....	Keene.
Cheshire.....	Mrs. F. McCarty..	" ..	Fell from moving freight train.....	May 27, 1886	Lost one foot.	Marlboro'.
"	E. A. Fuller.....	Employé....				

Cheshire.....	E. N. Spaulding...	Attempting to get on a moving passenger train, arm broken.....	June 24, 1886	Arm broken...	Keene.
Concord.....	Henry Buzzell...	Found dead beside track, probably struck by night freight train.....	Dec. 23, 1885	Killed.....	near Auburn.
"	Bridget Hoban...	Jumped from passenger train, fatally injured.....	Dec. 20, 1885	Fatally inj'd.	Manchester, dep.
"	A. A. Huntress..	Fell between cars, fatally injured..	May 4, 1886	"	nr. N. M't Jc.
"	Unknown man....	Walking on track below Manchester station, was struck by passenger train, instantly killed.....	Sept. 10, 1886	Instantly kill'd	Manchester.
Portland & Ogdensburg	Albert Billings...	Struck by piece of bridge iron	April 11, 1886	Ankle broken	Bartlett.
"	Geo. Harmon.....	Fell from car near Cook's Cut, in Conway.....	Aug. 4, 1886	Neck broken..	Conway.
Sullivan County.....	Geo. Provost.....	25 years of age; caught on to No. 5 freight train while passing Bel- lows Falls station, about half way between Bellows Falls bridge and No. Walpole, either fell or jumped off, breaking an arm and a leg; arm was afterwards amputated...	Jan. 5, 1886		
"	Thomas Flynn....	Gravel train; jumped from moving train while going into gravel pit between Springfield station and No. Charlestown, falling under the cars; cut off an arm, broke one leg, crushed his back. He died 4 o'clock P. M. same day.....			

INTERSTATE COMMERCE COMMISSIONERS.

The President has selected as members of the Interstate Commerce Commission the following gentlemen :

Thomas M. Cooley, of Michigan, for the term of six years.
 William R. Morrison, of Illinois, for the term of five years.
 Augustus Schoonmaker, of New York, for the term of four years.
 Aldace F. Walker, of Vermont, for the term of three years.
 Walter L. Bragg, of Alabama, for the term of two years.

The office of the board is at Washington, D. C.

STATE RAILROAD COMMISSIONERS.

STATE.	Established.	NAME AND POSITION.	Location of office.	Salary.
Alabama.....	1881	Henry R. Shorter, president.....	Montgomery.	\$3,500
		Levi W. Lawler, commissioner.....	do	3,000
		W. C. Tunstall, commissioner.....	do	3,000
		J. K. Jackson, clerk.....	do	1,500
California.....	1876	G. J. Carpenter, president	San Francisco.	4,000
		W. P. Humphreys, commissioner....	do	4,000
		W. W. Foote, commissioner.....	do	4,000
		W. R. Andrus, secretary.....	do	2,400
Colorado.....	1885	W. B. Felker, commissioner	Denver.	3,600
		H. Felker, secretary.....	do	1,800
Connecticut....	1853	George M. Woodruff, chairman.....	Hartford.	3,000
		John W. Bacon, commissioner	do	3,000
		William H. Hayward, commissioner.	do	3,000
		George T. Utley, secretary.....	do	1,800
Dakota.....	1885	William M. Evans, chairman.....	Fargo.	2,000
		Alexander Griggs, commissioner	do	2,000
		W. H. McVay, commissioner	do	2,000
		Isaac E. West, secretary	do	1,500
Georgia.....	1879	Campbell Wallace, chairman.....	Atlanta.	2,500
		Leander M. Trammell, commissioner	do	2,500
		I. C. Erwin, commissioner.....	do	2,500
		A. C. Briscoe, secretary.....	do	1,200
Illinois.....	1871	John I. Rinaker, chairman.....	Springfield.	3,500
		B. F. Marsh, commissioner.....	do	3,500
		William T. Johnson, commissioner..	do	3,500
		N. D. Munson, secretary.....	do	1,500
Iowa.....	1878	Peter A. Dey, chairman	Des Moines.	3,000
		James W. McDill, commissioner....	do	3,000
		L. S. Coffin, commissioner.....	do	3,000
		E. G. Morgan, secretary.....	do	1,500
Kansas.....	1883	James Humphrey, chairman.....	Topeka.	3,000
		L. L. Turner, commissioner.....	do	3,000
		Almerin Gillett, commissioner.....	do	3,000
		E. J. Turner, secretary	do	1,500
Kentucky.....	1880	J. P. Thompson, chairman.....	Frankfort.	2,000
		A. R. Boone, commissioner.....	do	2,000
		John D. Young, commissioner.....	do	2,000
		Clarence Egbert, secretary.....	do	300
Maine.....	1858	A. W. Wildes, chairman.....	Augusta.	per diem.
		John F. Anderson, commissioner...	do	per diem.
		D. N. Mortland, commissioner.....	do	per diem.

STATE RAILROAD COMMISSIONERS. — *Concluded.*

STATE.	Established.	NAME AND POSITION.	Location of office.	Salary.
Massachusetts ..	1869	George G. Crocker, chairman.....	Boston.	\$4,000
		Edward W. Kingsley, commissioner.	do	3,500
		Everett A. Stevens, commissioner. .	do	3,500
		William A. Crafts, clerk.....	do	2,000
Michigan	1873	William McPherson, Jr., commiss'ner	Lansing.	2,500
		Wyllys C. Ransom, deputy	do	1,500
Minnesota	1874	J. H. Baker, chairman	Saint Paul.	3,000
		S. S. Murdock, commissioner.....	do	3,000
		George L. Becker, commissioner.....	do	3,000
		E. S. Warner, secretary.....	do	1,500
Mississippi	1884	John M. Stone, chairman.....	Jackson.	2,500
		W. B. Augustus, commissioner	do	2,500
		W. H. McWillie, commissioner.....	do	2,500
Missouri	1875	George C. Pratt, chairman.....	Jefferson City.	3,000
		James Harding, commissioner.....	do	3,000
		William G. Downing, commissioner.	do	3,000
		H. H. Gregg, secretary.....	do	1,500
Nebraska.....	1885	E. P. Roggen, secretary of state....	Lincoln.	.....
		William Leese, attorney-general.....	do	.....
		H. A. Babcock, auditor.....	do	.....
		Charles H. Gere, secretary.....	do	2,000
		Charles Buschow, secretary.....	do	2,000
		Benjamin R. Cowdrey, secretary....	do	2,000
New Hampshire.	1883	H. M. Putney, chairman.....	Concord.	2,500
		E. B. S. Sanborn, commis'r and clerk	do	2,200
		E. J. Tenney, commissioner.....	do	2,000
New York	1882	John D. Kernan, chairman.....	Albany.	8,000
		William E. Rogers, commissioner....	do	8,000
		John O. O'Donnell, commissioner....	do	8,000
		William C. Hudson, secretary.....	do	3,000
Ohio	1867	W. S. Capper, commissioner.....	Columbus.	3,000
Rhode Island...	1872	Walter R. Stiness, commissioner....	Providence.	500
South Carolina..	1878	M. L. Bonham, chairman.....	Columbia.	2,100
		E. P. Jerve, commissioner.....	do	2,100
		D. P. Duncan, commissioner.....	do	2,100
		M. T. Bartlett, secretary.....	do	1,200
Vermont	1886	Samuel E. Pingree, chairman.....	Montpelier.	per diem.
		T. C. Fletcher, commissioner.....	do	per diem.
		H. L. Clark, commissioner.....	do	per diem.
		A. E. Watson, clerk.....	do	per diem.
Virginia	1877	Horace G. Moffett, commissioner....	Richmond.	2,000
Wisconsin	1874	Nils P. Haugen, commissioner	Madison.	3,000
		James H. Foster, sec'y and deputy..	do	1,500

RAILROAD TAXES.

The following is a statement showing the assessment of Railroad taxes for 1886, the amount distributed to the several cities and towns, and the balance accruing as revenue to the State :

CORPORATION.	Tax Assessed.	To Towns.	To State.
Ashuelot.....	\$1,927.65	\$951.79	\$975.86
Atlantic & St. Lawrence.....	6,468.10	1,617.02	4,851.08
Boston, Concord & Montreal.....	29,465.00	16,237.01	13,227.99
Boston & Maine <i>a</i>	20,105.11	7,626.49	<i>b</i> 12,478.62
Cheshire.....	15,644.14	5,553.71	10,090.43
Concord.....	28,407.81	22,621.13	<i>c</i> 5,786.68
Concord & Claremont.	7,004.86	1,885.61	5,119.25
Concord & Portsmouth... ..	5,598.35	5,154.38	<i>d</i> 443.97
Dover & Winnepesaukee	4,419.75	2,340.03	<i>e</i> 2,079.72
Eastern New Hampshire.....	4,051.49	2,783.59	<i>e</i> 1,267.90
Fitchburg.....	384.11	96.03	288.08
Manchester & Lawrence.....	17,635.49	12,500.47	<i>d</i> 5,135.02
Manchester & North Weare.....	942.88	238.22	<i>d</i> 704.66
Monadnock.....	1,167.24	711.06	456.18
Mount Washington	1,532.18	346.21	1,185.97
Nashua, Acton & Boston.....	235.72	58.93	<i>d</i> 176.79
Nashua & Lowell.....	4,355.85	1,867.76	2,488.09
Northern.....	23,412.96	10,308.93	13,104.03
Peterborough	523.98	217.59	306.39
Portland & Ogdensburg.....	2,946.50	786.18	2,160.32
Portland & Rochester	353.58	88.95	264.63
Portsmouth & Dover	1,178.60	1,091.82	<i>e</i> 86.78
Portsmouth, Great Falls & Conway.	5,198.62	1,711.65	<i>e</i> 3,486.97
Sullivan.....	5,893.00	1,473.25	4,419.75
Suncook Valley.....	1,621.64	1,582.61	<i>d</i> 39.03
West Amesbury Branch.....	294.65	73.66	220.99
Wilton.....	2,946.50	2,797.65	148.85
Wolfeborough.....	532.50	155.12	<i>e</i> 377.38
Worcester, Nashua & Rochester....	13,934.46	4,114.65	<i>e</i> 9,819.81
	\$208,182.72	\$106,991.50	\$101,191.22

a. Less \$157.30 allowance for interest on abatement of tax of 1884, per decree of court.

b. Includes entire Boston & Maine system.

c. Includes entire Concord system.

d. Included in Concord.

e. Included in Boston & Maine.

PART V.

RAILROAD RETURNS.

REPORT

OF THE

ASHUELOT RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$21,606.76
Total expense (including taxes)	2,879.84
Net income	18,726.92
Interest accrued during year	111.55
On unfunded debt	\$111.55
Dividends declared (8 per cent)	16,800.00
Balance for the year (surplus)	1,815.37
Balance at commencement of year	\$37,875.74
Balance at commencement of year as so changed	37,875.74
Balance September 30, 1886 (surplus)	39,691.11
ANALYSIS OF EARNINGS.	
Rents for use of road	\$18,863.08
Income from all other sources, viz.:	2,743.68
Interest on permanent improvements	\$2,193.68
" contingent fund	550.00
Total income from all sources	\$21,606.76
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$550.00
Contingencies and miscellaneous	60.00
Total operating expenses	610.00
Taxes, state	2,008.21
" local	261.63
Total operating expenses and taxes	\$2,879.84
CONSTRUCTION ACCOUNT.	
Engine-houses, car-sheds, and turn-tables	\$3,634.13

Total for construction	\$3,634.13
Total charges to property accounts	3,634.13
Net addition to property account for the year	3,634.13
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$237,856.25
Total permanent investments	\$237,856.25
Due from agents and companies	\$8,607.09
Sinking fund	10,000.00
Total cash assets	18,607.09
Total assets (as per books of the company)	\$256,463.34
LIABILITIES.	
Capital stock	\$210,000.00
Unfunded debt, viz.:	6,772.23
Dividends unpaid	\$4,200.00
Vouchers and accounts	2,572.23
Profit and loss balance	39,691.11
Total liabilities (as per books of the company)	\$256,463.34
DESCRIPTION OF ROAD.	
Main line of road from S. Vernon, Vt., to Keene, N. H.	24.0 miles.
“ “ in New Hampshire	23.2142 “
“ “ in Vermont . . . . .	.71 mile.
“ “ in Massachusetts . . . . .	.0757 “
Total road belonging to this company	24.0 miles.
Sidings and other tracks not above enumerated	3.7866 “
Same in New Hampshire	3.4849 “
Total length of track, computed as single track	27.7866 “
Same in New Hampshire	26.6991 “
Total length of steel rails in tracks, not including steel-top rails	20.5227 “
[Weight per yard, 56 lbs.]	
GENERAL INFORMATION.	
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards *	1

* In New Hampshire, on miles of road owned.

Aggregate length of same for single track (75 feet)	
Number of spans of timber bridges of 25 feet and upwards *	5
Aggregate length of same for single track (1,230 feet)	
Number of crossings of highways at grade *	21
“ “ over railroad	1
“ “ under “	1
Number of highway bridges 18 feet above track	1

CAPITAL STOCK.

Capital stock authorized by charter .	\$500,000.00
“ authorized by votes of company .	210,000.00
Capital stock issued (number of shares, 2,100) :	
amount paid in .	\$210,000.00
Total amount paid in as per books of the company .	210,000.00
Total number of stockholders .	29
Number of stockholders in New Hampshire .	4
Amount of stock held in New Hampshire	\$69,100.00

NAMES AND RESIDENCES OF OFFICERS.

A. B. Harris, *President*, Springfield, Mass. W. G. McIntyre, *Auditor*, Springfield, Mass. J. Mulligan, *Superintendent*, Springfield, Mass. H. E. Howard, *General Freight Agent*, Springfield, Mass. E. C. Watson, *General Ticket Agent*, Springfield, Mass. E. F. Lane, *Treasurer*, Keene, N. H. F. F. Lane, *Clerk of Corporation*, Keene, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

A. B. Harris, Springfield, Mass. : Oscar Edwards, Northampton, Mass. ; J. Mulligan, Springfield, Mass. ; E. F. Lane, Keene, N. H. : W. H. Haile, Springfield, Mass ; F. F. Lane, Keene, N. H. : George E. Frink, Springfield, Mass.

PROPER ADDRESS OF THE COMPANY :

THE ASHUELOT RAILROAD COMPANY,

SPRINGFIELD, HAMPDEN CO., MASS.

* In New Hampshire, on miles of road owned.

A. B. HARRIS,

President.

OSCAR EDWARDS,

Director.

E. F. LANE,

Treasurer.

J. MULLIGAN,

Superintendent.

COMMONWEALTH OF MASSACHUSETTS.

HAMPDEN, SS. SPRINGFIELD, December 22, 1866. Then personally appeared A. B. Harris, Oscar Edwards, and J. Mulligan, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

GEO. E. FRINK, *Justice of the Peace.*

STATE OF NEW HAMPSHIRE.

CHESHIRE, SS. December 25, 1886. Then personally appeared Elisha F. Lane, above-named treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

F. F. LANE, *Justice of the Peace.*

REPORT

OF THE

ATLANTIC & ST. LAWRENCE RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$283,889.38
Total expense (including taxes)	252,373.01
Net income	31,516.37
Interest accrued during year:	
Proportion for New Hampshire of rental paid by lessees as guaran- teed interest on stock and bonds } \$480,684.80	167,404.58
Balance for the year (debit)	135,888.21
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$32,203.49
From through passengers (to and from other roads over and beyond this road)	23,250.25
From express and extra baggage	4,004.48
mails	6,265.80
Total earnings from passenger department	65,724.02
From local freight (all freight starting from or stop- ping at any station on this road) *	55,894.54
From through freight (to and from other roads over and beyond this road)	161,450.50
Total earnings from freight department	217,345.04
Total transportation earnings	283,069.06
Income from all other sources, viz.:	820.32
Sundry rents for use of company's property \$820.32	
Total income from all sources	\$283,889.38
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$4,239.87
Legal expenses	1,340.50

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Insurance	\$2,411.58
Stationery and printing	198.76
Outside agencies and advertising	3,165.20
Contingencies and miscellaneous	1,025.73
Repairs of bridges (including culverts and cattle-guards)	4,650.22
Repairs of buildings	4,730.83
“ fences, road-crossings, and signs	2,577.60
Renewal of ties	5,076.00
[No. laid, 16,920.]	
Repairs of road-bed and track	23,863.45
“ locomotives	21,918.65
Fuel for locomotives	35,750.93
Water supply	1,631.33
Oil and waste	1,587.45
Locomotive service *	29,442.72
Repairs of passenger cars	6,282.60
Passenger-train service *	3,646.46
“ supplies	933.13
Repairs of freight cars	16,286.56
Freight-train service *	11,807.22
“ supplies	1,866.27
Mileage freight cars †	5,730.40
Telegraph expenses	5,495.40
Loss and damage, freight and baggage	869.90
“ “ property and cattle	1,083.38
Personal injuries	651.97
Agents' and station service *	39,590.09
Station supplies	5,670.27
Total operating expenses	\$245,524.47
Taxes, state	6,823.83
“ local	24.71
Total operating expenses and taxes	\$252,373.01

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of road	\$2,960,916.00
Total permanent investments	\$2,960,916.00

LIABILITIES.

Capital stock, \$5,484,000 — prop'n for New Hamp.	\$1,913,916.00
Funded debt, 3,000,000 — “ “	1,047,000.00
Total liabilities (as per books of the company)	\$2,960,916.00

* Salaries and Wages.

† Debit balances.

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	63,848
Freight-train mileage	229,291
Total revenue train mileage	293,139
Switching-train mileage, 65,170 — not treated as train miles	
Other train mileage	14,175
Total train mileage	307,314
Number of season-ticket passengers*	1,330
Number of local passengers (including season)	52,765
Number of through passengers (to and from other roads going over and beyond this road)	19,233
Total number of passengers carried	73,328
Local passenger mileage (local passengers carried one mile)	891,705
Through passenger mileage (through passengers carried one mile)	1,000,116
Total passenger mileage	1,891,821
Number tons local freight	181,031
Number tons through freight (to and from other roads going over and beyond this road)	528,576
Total number tons freight carried	709,607
Local freight mileage (tons local freight carried one mile)	3,454,863
Through freight mileage (tons through freight carried one mile) †	27,485,952
Total freight mileage	30,940,815
Average number of persons employed	213

DESCRIPTION OF ROAD.

Main line of road from Island Pond, Vt., to Portland, Me.	149.37 miles.
Main line of road in New Hampshire	52.02 "
" " " Vermont	14.80 "
" " " Maine	82.55 "
Total road belonging to this company	149.37 "
Sidings and other tracks not above enumerated	32.75 "
Same in New Hampshire	9.45 "
Total length of track, computed as single track	182.12 "
Same in New Hampshire	61.47 "
Total length of steel rails in tracks, not including steel-top rails	149.37 "
[Weight per yard, 65 lbs.]	
Number of stations on all roads owned by this company	31
Same in New Hampshire	11

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

EQUIPMENT.

Equipment furnished by the lessees.

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....			1	1			1	1
Employés ..	1	15		1		4	1	16
Others.....		2	1	5		2	1	7

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

November 20, 1885. — Gorham, G. W. Evans, yardman, coupling, finger injured.

December 10. — Gorham, I. H. Barrett, brakeman, coupling, shoulders injured.

February 3, 1886. — Gorham, C. I. Hayden, brakeman, fingers injured, coupling.

March 5. — North Stratford, A. Baldwin, trespasser, struck by engine and seriously injured.

May 7. — North Stratford, M. Curran, brakeman, fingers injured, coupling.

September 13. — Gorham, Louis Leclaire, trespasser, struck by train and badly injured.

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	35	tons.
Average " " " " .	32 $\frac{1}{2}$	"
Maximum weight of tenders full of fuel and water	30	"
Average " " " " .	27 $\frac{1}{2}$	"
Maximum weight of passenger cars . . .	35	"
Average " " " " . . .	27 $\frac{1}{2}$	"

Average weight of mail and baggage cars . . .	20 tons.
“ “ of 8-wheel box freight cars . . .	11 “
“ “ of 8-wheel platform cars . . .	7½ “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	41 feet 5 in.
Total length of heaviest engine and tender over all	51 “ 4 in.
Number of locomotives equipped with train brake: all passenger engines	
[Kind of brake, Westinghouse automatic.]	
Number of cars equipped with train brake: all passenger cars	
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer: all passenger cars	

BRIDGES.

Number of spans of iron bridges of 25 feet and upwards*	20
Number of crossings of highways at grade*	25
“ “ “ over railroad	4
“ “ “ under “	1
“ of highway bridges less than 18 feet above track	4
Number of crossings at which there are neither signals nor flagmen †	25

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3.61 cents.
Average rate of fare per mile received from passengers to and from other roads	2.33 “
Average rate of fare per mile for season-ticket passengers || . . . . .	1.25 “
Average rate of fare per mile received from all passengers	2.93 “
Average rate of local freight per ton per mile ‡	1.62 “
Average rate of freight per ton per mile received from freight to and from other roads . . . . .	.59 “
Average rate of freight per ton per mile received from all freight . . . . .	.70 “

* In New Hampshire, on miles road owned.

† On miles of road owned in New Hampshire.

‡ Rates as per tariff.

|| Reckoning twelve passengers per week for time of each season ticket.

CAPITAL STOCK.	
Capital stock authorized by charter and acts of Legislature	\$5,484,000
Capital stock authorized by votes of company	5,484,000
Capital stock issued (number of shares, 11,279 sterling; 245 federal; 29 fractional); amount paid in	\$5,484,000.00
Total amount paid in (as per books of the company)	5,484,000.00
DEBT.	
Funded debt, as follows:	
1st mortgage bonds, due November 2, 1888; rate of interest, 6 per cent	\$787,000.00
Interest paid on same during year	\$47,220.00
2d mortgage bonds, due October 1, 1884; rate of interest, 6 per cent	1,499,916.00
Interest paid on same during year	\$89,994.96
3d mortgage bonds, due May 1, 1891; rate of interest, 6 per cent	712,932.00
Interest paid on same during year	\$42,775.92
Balance of exchange of bonds	152.00
Interest paid on same during year	9.12
Total amount of funded debt	\$3,000,000.00

NAMES AND RESIDENCES OF OFFICERS.

Joseph Hickson, *President*, Montreal, P. Q.; Philip Henry Brown, *Vice-President*, Portland, Me.; Charles E. Barrett, *Treasurer*, Portland, Me.; F. R. Barrett, *Clerk of Corporation*, Portland, Me.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Joseph Hickson, Montreal, P. Q.; Philip Henry Brown, Charles E. Barrett, Harrison J. Libby, Franklin R. Barrett, Francis K. Swan, George P. Wescott, Portland, Me.; Sir Alexander T. Galt, Montreal, P. Q.

PROPER ADDRESS OF THE COMPANY:

ATLANTIC & ST. LAWRENCE RAILROAD COMPANY,
PORTLAND, ME.

JOSEPH HICKSON,
PHILIP HENRY BROWN,
CHARLES E. BARRETT,
HARRISON J. LIBBY,
FRANKLIN R. BARRETT,
FRANCIS K. SWAN,
GEORGE P. WESCOTT,
SIR ALEX. T. GALT,

Directors.

CHARLES E. BARRETT,

Treasurer.

STATE OF MAINE.

CUMBERLAND, ss. PORTLAND, December, 1886. Then personally appeared Charles E. Barrett and Franklin R. Barrett, directors, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

SIDNEY STEWART, *Justice of the Peace.*

REPORT

OF THE

BOSTON & LOWELL RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$4,628,386.54
Total expense (including taxes)		3,354,645.84
Net income		1,273,740.70
Rentals:		718,568.86
Boston & Maine R. R.	\$7,800.00	
Nashua & Lowell R. R.	65,000.00	
Stony Brook R. R.	20,000.00	
Wilton R. R.	16,950.00	
Peterborough R. R.	35,699.64	
Boston, Concord & Montreal R. R.	302,500.00	
Northern R. R.	158,420.00	
Concord & Claremont R. R.	41,500.00	
Nashua, Acton & Boston R. R.	3,000.00	
Old Colony R. R.	600.00	
St. J. & L. C. R. R.	67,099.22	
Interest accrued during year		253,084.27
On funded debt	254,829.00	
On other debt	1,744.73	
Dividends declared (6 per cent) July 1,	136,251.00	290,133.00
" " payable Jan. 1	153,882.00	
Balance for the year		11,954.57
Balance at commencement of year		474,239.54
Balance September 30, 1886		486,194.11
ANALYSIS OF EARNINGS.		
From local passengers (all passengers starting from or stopping at any station on this road) *		\$1,421,216.07
From through passengers (to and from other roads over and beyond this road)		404,557.53

* Including passengers to and from other roads starting from or stopping at stations on this road.

From express and extra baggage	\$93,297.39
mails	71,019.34
Total earnings from passenger department . .	1,990,090.33
From local freight (all freight starting from or stop- ping at any station on this road) *	1,246,507.36
From through freight (to and from other roads over and beyond this road)	1,253,615.08
Total earnings from freight department . .	2,500,122.44
Total transportation earnings	4,490,212.77
Income from all other sources, viz. :	138,173.77
Miscellaneous receipts \$136,296.00	
Accumulation of sinking fund 1,877.77	
Total income from all sources	\$4,628,386.54

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$83,872.00
Legal expenses	33,425.94
Insurance	29,766.39
Stationery and printing	31,592.69
Outside agencies and advertising	25,459.36
Contingencies and miscellaneous	28,726.64
Repairs of bridges (including culverts and cattle- guards)	65,125.32
Repairs of buildings	102,674.36
Repairs of fences, road-crossings, and signs . .	24,326.19
Renewal of rails	48,806.70
Renewal of ties	94,243.12
[No. laid, 263,031.]	
Repairs of road-bed and track	442,745.68
Repairs of locomotives	213,333.33
Fuel for locomotives	447,060.73
[Tons of coal, 83,471 $\frac{3}{4}$; cords of wood, 32,080.]	
Water supply	16,336.30
Oil and waste	26,148.11
Locomotive service †	286,059.83
Repairs of passenger cars	111,725.22
Passenger-train service †	141,244.47
" supplies	16,134.34
Mileage passenger cars ‡	3,827.86
Repairs of freight cars	136,547.30
Freight-train service †	167,569.59
" supplies	7,048.82
Mileage freight cars ‡	80,674.55
Telegraph expenses	46,301.55
Loss and damage, freight and baggage	8,216.48
" " property and cattle	8,699.99
Personal injuries	14,762.93

* Including freight to and from other roads starting from or stopping at stations on this road. † Salaries and wages. ‡ Debit balances.

Agents' and station service *	\$401,178.92
Station supplies	40,835.58
Total operating expenses	3,184,470.29
Taxes, state }	170,175.55
local }	
Total operating expenses and taxes	\$3,354,645.84
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Land, land damages, and fences	\$6,900.00
Double track, Middlesex Central R. R.	55,340.43
Improvement at Winter Hill	9,026.55
Bedford & Billerica R. R.	2,910.83
Woburn branch extension	125,137.54
Investments in Manchester & Keene R. R.	701.65
Real estate and buildings	33,436.74
Total for construction	\$233,453.74
Parlor and sleeping cars (number, 1)	14,500.00
Furniture and tools, White Mountain division	100.00
Stocks, bonds, and investments	452,861.84
Total charges to property accounts	\$696,915.58

Balance-Sheet, September 30, 1886.

ASSETS.		
Cost of road	\$6,640,352.80	
Cost of equipment	1,199,029.41	
Wharves and wharf property	911,537.41	
Extension of Woburn branch	282,771.18	
Investment in M. & K. R. R.	337,749.70	
Bedford & Billerica R. R.	49,232.58	
Furniture and tools, White Mt. Div.	30,319.68	
Stocks, bonds, and investments	452,861.84	
Double track, Middlesex Cen. R. R.	55,340.43	
Improvement at Winter Hill	9,026.55	
Total permanent investments		\$9,968,221.58
Cash	\$68,142.79	
Notes receivable	626,448.06	
Due from agents and companies	704,932.02	
Materials and supplies	494,946.86	

* Salaries and wages.

Sinking fund	\$48,822.04	
Debit balances	151,718.70	
Central Massachusetts R. R.	162,352.98	
Total cash assets		\$2,257,363.45
Leased equipment		228,226.06
Total assets (as per books of the company)		\$12,453,811.09
LIABILITIES.		
Capital stock		\$5,129,400.00
Funded debt		4,346,400.00
Unfunded debt, viz.:		1,549,595.22
Interest unpaid	\$97,699.17	
"	153,882.00	
Dividends unpaid	1,143.00	
Notes payable	920,000.00	
Vouchers and accounts	376,871.05	
Profit and loss balance		486,194.11
Nashua & Lowell R. R.		228,226.06
Boston, Concord & Montreal R. R.		607,423.93
Improvement account, Southern division		104,060.34
" " Northern "		2,511.43
Total liabilities (as per books of the company)		\$12,453,811.09
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		\$2,240,303
Freight-train mileage		1,702,119
Total revenue train mileage		3,942,422
Switching-train mileage		648,105
Other train mileage		90,956
Total train mileage		4,681,483
Number of season-ticket passengers *		539,003
Number of local passengers (including season), and mileage. Each 1000-miles ticket is estimated as 40 passengers of 25 miles		6,334,450
Number of through passengers (to and from other roads going over and beyond this road)		365,580
Total number of passengers carried		6,700,030
Local passenger mileage (local passengers carried one mile)		70,282,913
Through passenger mileage (through passengers carried one mile)		18,083,625
Total passenger mileage		88,366,538
Number tons local freight		1,230,682

* Reckoning twelve passengers per week for time of each season ticket.

Number tons through freight (to and from other roads going over and beyond this road) . . .	1,350,973
Total number tons freight carried . . .	2,581,655
Local freight mileage (tons local freight carried one mile) . . .	45,060,903
Through freight mileage (tons through freight carried one mile) * . . .	104,773,851
Total freight mileage . . .	149,834,754
Average number of persons employed . . .	3,543

DESCRIPTION OF ROAD.

Main line of road from Boston to Lowell . . .	26.75 miles.
Double track on main line . . .	26.75 "
Branches owned by the company, viz.:	
Mystic (single track) . . .	2.25 "
Lexington & Arlington (double track) . . .	9.25 "
Woburn (double track) . . .	6.20 "
Stoncham (single track) . . .	2.50 "
Lawrence branch (single track) . . .	3.21 "
Salem & Lowell (single track) . . .	16.80 "
Lowell & Lawrence (single track) . . .	12.42 "
Middlesex Central (single track) . . .	11.08 "
Bedford & Billerica (single track) . . .	7.63 "
Total length of branches owned by company . . .	71.34 "
Double track on branches . . .	15.45 "
Total road belonging to this company . . .	98.09 "
Sidings and other tracks not above enumerated . . .	54.61 "
Total length of track, computed as single track . . .	194.90 "
Total length of steel rails in tracks, not including steel-top rails . . .	110.0 "
[Weights per yard, 60 and 72 lbs.]	

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Nashua & Lowell, length . . .	14.50 miles.
Stony Brook, " . . .	13.16 "
Wilton, " . . .	15.50 "
Peterborough " . . .	10.50 "
Manchester & Keene (owned jointly with Concord Railroad), length . . .	29.59 "
Boston, Concord & Montreal, length . . .	187.26 "
Northern (N. H.), length . . .	82.91 "
Concord & Claremont, length . . .	90.04 "
St. Johnsbury & Lake Champlain, length . . .	132.00 "
Central Massachusetts, length . . .	43.69 "
Total length of above roads . . .	619.15 miles.

* Carried to and from other roads.

Total length of above roads in New Hampshire . . .	421.05 miles.
" Vermont	132.0 "
" Massachusetts	66.10 "
Total miles of road operated by this company . . .	717.24 "
Total miles of road operated by this company in New Hampshire	421.05 "
Number of stations in New Hampshire on all roads operated by this company	99
Number of telegraph offices in same	76
Number of stations on all roads owned by this company	63

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives	61	116	177
" passenger cars	35	125	155
" parlor or sleeping cars	1	10	11
" baggage, mail, and express cars	23	57	80
" freight cars (basis of 8 wheels)	1,098	2,478	3,576
" other cars	32	84	116

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers				1				1
Employés	7	14					7	14
Others		1	7	6			7	7

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

October 5, 1885.—James Davis found beside track near Warren station fatally injured. It is supposed that he attempted to get on to moving freight car and fell under wheels.

October 18.—Lucius Groves and John P. Emerson, engineers,

and E. F. Harvey, freight brakeman, were killed. Oscar G. Leighton and Frank C. Wells, firemen, Wm. W. Stone, express messenger, Frank M. Stevens, postal clerk, and William Turner, baggage master, were injured in a collision between passenger and freight trains near Andover Centre.

November 4. — W. G. Braley, employe, struck by cars and slightly injured while making up train at West Lebanon.

November 5. — Wooster W. Dearborn, engineer, supposed to have been caught between engine and tender of a derailed locomotive at Plymouth; fatally injured.

November 5. — James Landers, employe, fell from freight car at Orange Summit and sprained his ankle.

December 14. — Augustus H. Wheeler, 14 years old, driving across track in Milford, was struck by passenger train and fatally injured.

December 15. — F. C. Coates, employe, had fingers injured while uncoupling cars at East Lebanon.

January 12, 1886. — H. H. Edwards injured by derailment of train at Tilton.

January 14. — Mr. Landre crawled under passenger car at Nashua and was instantly killed when train started; suicide.

February 1. — James Staples jumped from passenger car near East Andover and was fatally injured (not a passenger).

February 6. — Mr. Webster, walking on track, was struck by locomotive, but not seriously injured, at Tilton; intoxicated.

February 10. — James E. Sheean, employe, arm crushed while coupling cars at Concord.

February 16. — Joseph Progius, attempting to board passenger train at Hillsborough Bridge, fell and had foot crushed by wheels; intoxicated.

February 20. — Wallace Smith, walking on track near Wilton, was run over by train and lost a leg.

March 3. — J. S. Greeley, employe, was injured at Franklin by fall of a door from freight car.

May 6. — Henry Williams, walking on track near Lisbon, was struck by locomotive and instantly killed; intoxicated.

June 25. — George W. Bayseu, employe, fell from freight car at Marlborough and was fatally injured.

July 23. — B. D. Brown, employe, hand injured while coupling engine to train at West Lebanon.

August 11. — John Aldrich, employe, fell from moving train near Warren Summit and was fatally injured.

August 21. — Jessie Colby was killed, Nora Colby, Blanche

Colby, and Nellie Flanders were injured by passenger train while attempting to cross the track in a carriage, about a mile north of Hillsborough Bridge.

August 23. — George O. Robinson, attempting to board a moving train at East Concord, was thrown under the wheels and lost a leg.

August 30. — Charles Evans, employe, received an injury to hand while coupling cars at Concord.

September 3. — W. C. Walker, employe, injured by being caught between freight car and switch frame at Concord.

September 10. — William M. Ordway, employe, fell from roof of bridge at Claremont and was instantly killed.

September 14. — Wallace Glines, walking on track near East Tilton, was struck by train and killed; intoxicated.

September 23. — Thomas Higgins, employe, arm injured while uncoupling freight cars at Penacook.

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	103,000 lbs.
Average " " " " " "	66,000 "
Maximum weight of tenders full of fuel and water .	67,000 "
Average " " " " " "	41,000 "
Maximum weight of passenger cars . . .	39,000 "
Average " " " " " "	36,000 "
" " mail and baggage cars . . .	24,000 "
" " 8-wheel box freight cars . . .	16,000 "
" " 4-wheel " " " " " "	7,000 "
" " 8-wheel platform cars . . .	14,000 "
" " 4-wheel " " " " " "	5,000 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46 ft. 10 in.
Total length of heaviest engine and tender over all Charges for the transportation of company's supplies included in earnings as reported for this road.	57 " 5 "

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company* . . . . .	.0221
Average rate of fare per mile received from passengers to and from other roads . . . . .	.0223
Average rate of fare per mile for season-ticket passengers † . . . . .	.0065

* Rates as per tariff.

† Reckoning twelve passengers per week for time of each season ticket.

Average rate of fare per mile received from all passengers . . . . .	.0206
Average rate of local freight per ton per mile* . . . . .	.0276
Average rate of freight per ton per mile received from freight to and from other roads . . . . .	.0120
Average rate of freight per ton per mile received from all freight . . . . .	.0167

CAPITAL STOCK.

Capital stock authorized by charter	\$5,129,400.00	
Capital stock authorized by votes of company	5,129,400.00	
Capital stock issued (number of shares, 51,294); amount paid in		\$5,129,400.00
Total amount paid in (as per books of the company)		5,129,400.00
Total number of stockholders	1,451	
Number of stockholders in New Hampshire	86	
Amount of stock held in "	\$207,500.00	

DEBT.

Funded debt, as follows:

Bonds due April 1, 1892; rate of interest, 7 per cent		\$999,500.00
Interest paid on same during year	\$69,965.00	
Bonds due March 1, 1895; rate of interest, 7 per cent		500,000.00
Interest paid on same during year	\$35,000.00	
Bonds due July 1, 1896; rate of interest, 6 per cent		750,000.00
Interest paid on same during year	\$45,000.00	
Bonds of Lowell & Lawrence Railroad, due October 1, 1897; rate of interest, 6 per cent		200,000.00
Interest paid on same during year	\$12,000.00	
Bonds of Salem & Lowell Railroad, due October 1, 1898; rate of interest, 6 per cent		226,900.00
Interest paid on same during year	\$13,614.00	
Bonds due July 1, 1899; rate of interest, 5 per cent		620,000.00
Interest paid on same during year	\$31,000.00	
Bonds due May 1, 1903; rate of interest, 4½ per cent		\$250,000.00
Interest paid on same during year	\$11,250.00	
Bonds due September 1, 1905; rate of interest, 4 per cent		500,000.00
Interest paid on same during year	\$20,000.00	
Bonds of Nashua & Lowell Railroad		300,000.00
Interest paid on same during year	\$17,000.00	

Total amount of funded debt	\$4,346,400.00
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NAMES AND RESIDENCES OF OFFICERS.

Edwin Morey, *President*, Boston, Mass.; C. S. Mellen, *General Superintendent*, Arlington, Mass.; B. F. Kendrick, *Auditor*, Newton, Mass.; H. N. Turner, *General Freight Agent*, Winchester, Mass.; Lucius Tuttle, *General Passenger Agent*, Somerville, Mass.; C. E. A. Bartlett, *Treasurer*, Chelmsford, Mass.; C. E. Cram, *Clerk of Corporation*, Winchester, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Edwin Morey, A. Cochrane, T. J. Coolidge, and Wm. A. Haskell, Boston, Mass.; Frederick E. Clark, Lawrence, Mass.; Channing Clapp and Wm. Powell Mason, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

BOSTON & LOWELL RAILROAD CORPORATION,
BOSTON, MASS.

EDWIN MOREY,
Director.
C. E. A. BARTLETT,
Treasurer.
C. S. MELLEN,
General Superintendent.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. January 12, 1887. Then personally appeared Edwin Morey, president, C. E. A. Bartlett, treasurer, and C. S. Mellen, general superintendent, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

WILLIAM H. COOLIDGE,
Justice of the Peace.

REPORT

OF THE

BOSTON, CONCORD & MONTREAL RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$306,102.33
Total expense (including taxes)	16,435.75
Net income	289,666.58
Rental to Pemigewasset Valley Railroad, \$30,204.00	
Interest accrued during year:	
On funded debt	172,614.00
On other debt	41,246.65
Dividends declared (2½ per cent) on preferred stock	38,440.00
Balance for the year (surplus)	282,504.65
	7,161.93
ANALYSIS OF EARNINGS.	
Rents for use of road	\$297,500.00
Income from all other sources, viz.:	
Miscellaneous	8,602.33
Total income from all sources	\$306,102.33
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$4,926,850.87
Interest in Pemigewasset House	16,000.00
Total permanent investments	\$4,942,850.87
Cash	\$90,459.01
Materials and supplies	230,875.83

Sinking fund (trustees)	201,500.00	
Debit balances	44,705.84	
Total cash assets		\$567,540.68
Total assets (as per books of the company) .		\$5,510,391.55
LIABILITIES.		
Capital stock		\$1,800,000.00
Funded debt		3,071,600.00
Unfunded debt, viz.:		
Interest unpaid	\$2,106.50	
Dividends unpaid (including dividend payable Nov. 15, 1886) .	27,471.89	29,578.39
Profit and loss balance		609,213.16
Total liabilities (as per books of the company)		\$5,510,391.55
<i>Present or Contingent Liabilities not Included in the Balance-Sheet.</i>		
Notes of the company to the amount of \$878,000.00		
Of which amount is represented by sinking fund bonds in our own and trustees' hands, included in floating debt, as above	422,000.00	
The remainder represents amounts paid on account of extensions, improvements, etc.		\$456,000.00
DESCRIPTION OF ROAD.		
Main line of road from Concord to Groveton Junc.	145.877 miles.	
“ “ in New Hampshire	145.877 “	
Branches owned by the company, viz., Wing road to base of Mt. Washington (single track)	20.390 “	
Total length of branches owned by company	20.390 “	
Total length of branches owned by company in New Hampshire	20.390 “	
Total road belonging to this company	166.267 “	
[Weight per yard, 56 lbs.]		
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>		
Pemigewasset Valley Railroad, length	20.0 miles.	
Total length of above roads	20.0 “	
“ “ in New Hampshire	20.0 “	
Total miles of road operated by this company . .	186.267 “	
Total miles of road operated by this company in New Hampshire	186.267 “	

Number of stations in New Hampshire on all roads operated by this company	43
Number of telegraph offices in same	31
Number of stations on all roads owned by this company	38
Same in New Hampshire	38

EQUIPMENT.

Number of locomotives	38
Number of passenger cars, including three observation cars	24
Number of parlor or sleeping cars	5
Number of baggage, mail, and express cars	24
Number of freight cars (basis of 8 wheels)	918
Number of other cars (49 hand and push cars)	98
[The above leased to and operated by Boston & Lowell Railroad.]	

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	77.400 tons.
Average " " " "	61.137 "
Maximum weight of tenders full of fuel and water	55.250 "
Average " " " "	43.600 "
Maximum weight of passenger cars	38.700 "
Average " " " "	35.150 "
" " mail and baggage cars	31.600 "
" " 8-wheel box freight cars	21.000 "
" " 8-wheel platform cars	16.500 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	43 $\frac{3}{12}$ feet.
Total length of heaviest engine and tender over all	54 $\frac{4}{12}$ "
Number of locomotives equipped with train brake .	23
[Kind of brake, Westinghouse automatic.]	
Number of cars equipped with train brake	45
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer	29

CAPITAL STOCK.

Capital stock authorized by votes of company	\$1,800,000.00
Capital stock issued (number of shares, 18,000); amount paid in	\$1,800,000.00
Total amount paid in (as per books of the company)	1,800,000.00
Total number of stockholders	1,791
Number of stockholders in New Hampshire	1,230
Amount of stock held in " "	\$1,187,400

DEBT.	
Funded debt, as follows :	
Bonds due January 1, 1889 ; rate of interest, 6 per cent	\$202,000.00
Interest paid on same during year . . . \$12,120.00	
Bonds due April 1, 1893 ; rate of interest, 6 per cent	582,400.00
Interest paid on same during year . . . \$34,944.00	
Bonds due April 1, 1893 ; rate of interest, 7 per cent	1,365,000.00
Interest paid on same during year . . . \$95,550.00	
Bonds due January 1, 1911 ; rate of interest, 6 per cent	500,000.00
Interest paid on same during year . . . \$30,000.00	
Bonds due August 15, 1865 (never presented)	200.00
Funded debt	\$3,071,600.00
Deduct sinking fund bonds	422,000.00
Total amount of funded debt	\$2,649,600.00

NAMES AND RESIDENCES OF OFFICERS.

Edward H. Rollins, *President*, Dover, N. H. ; Edward D. Harlow, *Treasurer*, Boston, Mass. ; Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Edward H. Rollins, Dover, N. H. ; Harry Bingham, Littleton, N. H. ; Nathan H. Weeks, Plymouth, N. H. ; Noah S. Clark, Manchester, N. H. ; Samuel S. Kimball, Concord, N. H. ; Lewis C. Pattee, Lebanon, N. H. ; Charles E. Morrison, Boston, Mass.

PROPER ADDRESS OF THE COMPANY :

BOSTON, CONCORD & MONTREAL RAILROAD,
Treasurer's and Transfer Office, No. 31 MILK ST., BOSTON, MASS.

EDWARD D. HARLOW,
Treasurer.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. January 7, 1887. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEO. N. CARPENTER, *Justice of the Peace.*

REPORT

OF THE

CONCORD & CLAREMONT (N. H.) RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$35,000.00
Interest accrued during year :	
On funded debt	\$35,000.00
Balance at commencement of year	6,508.99
Balance September 30, 1886 (surplus)	6,508.99
ANALYSIS OF EARNINGS.	
Income from all sources, viz. :	\$35,000.00
Interest on first mortgage bonds, 7s, \$500,000 from Boston & Lowell Railroad.	
Balance-Sheet, September 30, 1886.	
ASSETS.	
Total permanent investments	\$1,131,206.38
Cash	\$38,900.35
Boston & Lowell Railroad	25,000.00
Total cash assets	63,900.35
Total assets (as per books of the company)	\$1,195,106.73
LIABILITIES.	
Capital stock	\$412,400.00
Funded debt	500,000.00

Interest unpaid	\$420.00	
Superintendent's department	569.22	
Northern Railroad	254,245.72	
Reserve	20,962.80	
		\$276,197.74
Profit and loss balance		6,508.99
Total liabilities (as per books of the company)		\$1,195,106.73

DESCRIPTION OF ROAD.

Main line of road from Concord, N. H., to Claremont Junction, N. H.	56.0	miles.
Main line of road in New Hampshire	56.0	"
Branch owned by the company, viz. :		
Contoocook to Hillsborough Bridge (single track)	14.9	"
Total length of branches owned by company	14.9	"
Total length of branches owned by company in New Hampshire	14.9	"
Total road belonging to this company	70.9	"
Sidings and other tracks not above enumerated	7.75	"
Total length of track, computed as single track	78.65	"
Same in New Hampshire	78.65	"

LIST OF ACCIDENTS.

Included in Boston & Lowell Railroad report.

BRIDGES.

Number of trestle bridges of 25 feet length and upwards *	2
Number of spans of timber bridges of 25 feet and upwards *	28
Number of crossings of highways at grade *	90
" " over railroad	2
" " under railroad	1
Number of highway bridges 18 feet above track	2
" crossings at which gates or flagmen are maintained	2
Number of crossings at which there are neither signals nor flagmen *	91

CAPITAL STOCK.

Capital stock issued (number of shares, 4,124); amount paid in	\$412,400.00
Total number of stockholders	11

* In New Hampshire, on miles road owned.

Number of stockholders in New Hampshire . . .	10
Amount of stock held in New Hampshire	\$12,400.00

DEBT.

Funded debt, as follows:

Bonds due January 1, 1894; rate of interest, 7 per cent	\$500,000.00
Interest accrued on same during year	\$35,000.00
Total amount of funded debt	500,000.00

NAMES AND RESIDENCES OF OFFICERS.

Dexter Richards, *President*; George A. Kettell, *Treasurer*; Chas. P. Sanborn, *Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Dexter Richards, Newport, N. H.; A. W. Sulloway, Franklin, N. H.; D. W. Johnson, Claremont, N. H.; Mason W. Tappan, Bradford, N. H.; J. H. Benton, Jr., Charles O. Stearns, Augustus E. Scott, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

CONCORD & CLAREMONT (N. H.) RAILROAD,

CONCORD, N. H.

Treasurer's Office, 28 STATE STREET, BOSTON, MASS.

A. W. SULLOWAY,
GEORGE E. TODD,
Directors.

GEORGE A. KETTELL,
Treasurer.

STATE OF NEW HAMPSHIRE.

MERRIMACK, SS. CONCORD, N. H., February 5, 1887. Then personally appeared A. W. Sulloway, George E. Todd, and George A. Kettell, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. W. FLAVIN, *Justice of the Peace.*

REPORT

OF THE

NASHUA & LOWELL RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$83,514.79
Total expense (including taxes)	5,603.39
Net income	77,911.40
Interest accrued during the year:	17,585.89
On funded debt	\$17,000.00
On other debt	585.89
Dividends declared (7 per cent)	56,000.00
Balance for the year (surplus)	4,325.51
Balance at commencement of year	\$124,315.18
Deduct account of Boston & Lowell Railroad Company charged off by order of directors	7,500.00
Balance at commencement of year as so changed	116,815.18
Balance September 30, 1886	121,140.69
ANALYSIS OF EARNINGS.	
Rents for use of road	\$65,000.00
Income from all other sources, viz.:	18,514.79
Interest received	\$17,388.79
Rent of house at No. Chelmsford	78.00
Land damages	1,048.00
Total income from all sources	\$83,514.79
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,705.00
Legal expenses	2,974.94

Contingencies and miscellaneous		\$923.45
Total operating expenses		\$5,603.39
Total operating expenses and taxes		5,603.39
Balance-Sheet, September 30, 1886.		
ASSETS.		
Cost of road	\$691,292.07	
Cost of equipment	218,242.95	
Total permanent investments		\$909,535.02
Cash	\$34,129.23	
Bills receivable	300,000.00	
Due from agents and companies	17,944.94	
Total cash assets		\$352,074.17
Total assets (as per books of the company)		\$1,261,609.19
LIABILITIES.		
Capital stock		\$800,000.00
Funded debt		300,000.00
Unfunded debt, viz.:		
Interest unpaid	\$453.00	
Dividends unpaid	29,015.50	
Notes payable	11,000.00	
		40,468.50
Profit and loss balance		121,140.69
Total liabilities (as per books of the company)		\$1,261,609.19
DESCRIPTION OF ROAD.		
Main line of road from Nashua to Lowell	14.5	miles.
“ “ in New Hampshire	5.25	“
“ “ in Massachusetts	9.25	“
Double track on main line	14.5	“
Same in New Hampshire	5.25	“
Total road belonging to this company	14.5	“
Sidings and other tracks not above enumerated	6.084	“
Same in New Hampshire	1.95	“
Total length of track, computed as single track	35.084	“
Same in New Hampshire	12.45	“
CAPITAL STOCK.		
Capital stock authorized by charter	\$800,000.00	

Capital stock authorized by votes of company	\$800,000.00	
Capital stock issued (number of shares, 8,000) ; amount paid in		\$800,000.00
Total amount paid in (as per books of the company)		800,000.00
Total number of stockholders	421	
Number of stockholders in New Hampshire	190	
Amount of stock held in " "	\$248,400.00	
DEBT.		
Funded debt, as follows :		
Bonds due August 1, 1893 ; rate of interest, 6 per cent		\$200,000.00
Interest paid on same during year	\$12,000.00	
Bonds due July 1, 1900 ; rate of interest, 5 per cent		100,000.00
Interest paid on same during year	\$5,000.00	
Total amount of funded debt		\$300,000.00

NAMES AND RESIDENCES OF OFFICERS.

Francis A. Brooks, *President*, Boston, Mass. ; Jeremiah W. White, *Treasurer*, Nashua, N. H. ; Walter A. Lovering, *Clerk of Corporation*, Nashua, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Francis A. Brooks, Sidney K. Richardson, Boston, Mass. ; Jeremiah W. White, William W. Bailey, Nashua, N. H. ; Albert M. Shay, Lebanon, N. H.

PROPER ADDRESS OF THE COMPANY :

NASHUA & LOWELL RAILROAD CORPORATION,
NASHUA, N. H.

FRANCIS A. BROOKS,
Director.

J. W. WHITE,
Treasurer.

The Nashua & Lowell Railroad Company, having leased its road, has no superintendent.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. December 29, 1886. Then personally appeared Francis A. Brooks, of Boston, the president of the Nashua & Lowell Railroad Corporation, and J. W. White, of Nashua, its treasurer and one of its directors, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

Before me,

ALFRED S. HALL, *Justice of the Peace.*

REPORT

OF THE

NORTHERN RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income *	\$207,674.32
Total expenses (including taxes)	10,785.15
Net income	196,889.17
Dividends declared (6 per cent) *	179,838.00
Balance for the year (surplus)	17,051.17
Balance at commencement of year . \$146,025.27	
Balance September 30, 1886 (surplus)	163,076.44
ANALYSIS OF EARNINGS.	
Rents for use of road from Boston & Lowell R. R.	\$153,420.00
Income from all other sources, viz. :	
Balance interest \$46,763.86	
Other sources 7,490.46	
	54,254.32
Total income from all sources	\$207,674.32
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks . . .	\$4,712.41
Legal expenses	4,411.80
Stationery and printing	189.96
Advertising	28.00
Contingencies and miscellaneous	1,442.98
Total operating expenses and taxes . . .	\$10,785.15

* The lease of this road to the Boston & Lowell Railroad provides, besides the regular rental, a payment of five thousand dollars per year for the expense of preserving its organization. Of this sum, one half, being the amount due at the close of our last fiscal year, March 31, 1886, was placed to the credit of reserve account as heretofore, and the balance carried to income account.

Balance-Sheet, September 30, 1886.	
ASSETS.	
Total permanent investments	\$3,068,400.00
Cash	\$24,434.72
Bills receivable	895,243.40
Northern Railroad, 711 shares — purchase of stock	37,708.34
Concord & Claremont (N. H.) Railroad, in trust	254,245.72
Debit balances, superintendent's department	12,769.48
Total cash assets	1,224,401.66
Total assets (as per books of the company)	\$4,292,801.66
LIABILITIES.	
Capital stock	\$3,068,400.00
Unfunded debt, viz. :	
Interest unpaid, coupons	\$33.00
Dividends unpaid (\$103,107.26)	103,074.26
includes dividends due Dec. 1, 1886.	103,107.26
Contingent fund	958,217.96
Profit and loss balance *	163,076.44
Total liabilities (as per books of the company)	\$4,292,801.66
Bonds guaranteed by this company, or a lien on its road: Bonds of Concord & Claremont (N. H.) Railroad.	
DESCRIPTION OF ROAD.	
Main line of road from Concord, N. H., to White River Junction, Vt.	69.5 miles.
Branch owned by the company, viz. :	
Franklin to Bristol, N. H. (single track)	13.41 “
STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.	
In Boston & Lowell Railroad report.	

* If surplus, which should include all sinking, contingent, and other funds laid aside from the earnings.

GENERAL INFORMATION.

Number of crossings at which there are neither signals nor flagmen*	72
CAPITAL STOCK.	
Capital stock authorized by charter	\$3,068,400.00
Capital stock authorized by votes of company	3,068,400.00
Capital stock issued (number of shares, 30,684) ; amount paid in	\$3,068,400.00
Total number of stockholders	2,235
Number of stockholders in New Hampshire	1,079
Amount of stock held in New Hampshire	\$8,440.00

NAMES AND RESIDENCES OF OFFICERS.

Alvah W. Sulloway, *President*, Franklin, N. H. ; George A. Kettell, *Treasurer* ; William L. Foster, *Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George W. Nesmith and Alvah W. Sulloway, Franklin, N. H. ; Uriel Crocker, J. H. Benton, Jr., Benjamin P. Cheney, and Silas Peirce, Boston, Mass. ; George E. Todd, Concord, N. H.

PROPER ADDRESS OF THE COMPANY :

NORTHERN RAILROAD,

CONCORD, N. H.

Treasurer's Office, 28 STATE ST., BOSTON, MASS.

A. W. SULLOWAY,
GEORGE E. TODD,

Directors.

GEORGE A. KETTELL,
Treasurer.

* On miles of road owned in New Hampshire.

STATE OF NEW HAMPSHIRE.

MERRIMACK, SS. CONCORD, N. H., February 5, 1887. Then personally appeared A. W. Sulloway, president, George A. Kettell, treasurer, and George E. Todd, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. W. FLAVIN, *Justice of the Peace.*

REPORT

OF THE

PEMIGEWASSET VALLEY RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income (including rent of road, which is paid by B. C. & M. R. R. to the stockholders of the Pemigewasset Valley Railroad)	\$30,504.00
Total expense (including taxes)	168.90
Net income	\$30,335.10
Dividends declared (3 per cent) semi-annually, paid by the B. C. & M. R. R. to the stockholders of the Pemigewasset Valley Railroad	30,204.00
Balance for the year (surplus)	131.10
Balance at commencement of year	174.49
Balance September 30, 1886 (surplus)	305.59
ANALYSIS OF EARNINGS.	
(Included in report of Boston & Lowell Railroad.)	
Rents for use of road	\$30,204.00
Income from all other sources, viz.:	300.00
For expense of organization \$300.00	
Total income from all sources	\$30,504.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$150.00
Contingencies and miscellaneous	18.90
Total operating expenses and taxes	\$168.90
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Land, land damages, and fences	\$15.00
Total charges to property accounts	15.00
Net addition to property account for the year	15.00

Balance-Sheet, September 30, 1886.
ASSETS.

Cost of road	\$411,157.61	
Cost of equipment	91,842.14	
	<hr/>	
Total permanent investments		\$502,999.75
Cash	\$400.25	
Balance of income for organization	305.59	
	<hr/>	
Total cash assets		705.84
Total assets (as per books of the company)		\$503,705.59
Capital stock authorized by vote of the corporation, but not issued		26,600.00
		<hr/>
		\$530,305.59

LIABILITIES.

Capital stock	\$503,400.00
Profit and loss balance (balance of funds for organization)	305.59
	<hr/>
Total liabilities (as per books of the company)	\$503,705.84

Present or Contingent Liabilities not included in the Balance-Sheet.

Unsettled claims for construction, estimated at \$26,600.00, to be paid by capital stock authorized by corporation, on which dividends are to be paid under the lease of the Pemigewasset Valley R. R. to the B. C. & M. R. R.	\$26,600.00
	<hr/>
Total (not included in Balance-Sheet)	\$530,705.84

MILEAGE, TRAFFIC, ETC.

Included in report of Boston & Lowell Railroad.

DESCRIPTION OF ROAD.

Main line of road from Plymouth to Franconia and branch from Campton to Livermore, estimated	75.0 miles.
Main line of road in New Hampshire	75.0 "
Track laid	20.057 "

Sidings and other tracks not above enumerated (not including sidings built by B. C. & M. R. R. and B. & L. R. R., since lease of road, of which this railroad has no account)	.37 miles.
Total length of track computed as single track	20.057 "
Total length of steel rails in tracks, not including steel-top rails	20.057 "
[Weight per yard, 56 lbs.]	
Number of stations on all roads owned by this company	8
Same in New Hampshire	8

EQUIPMENT.

Number of locomotives leased to B. C. & M. R. R. and operated by B & L. R. R.	2
Number of passenger cars	2
Number of other cars	125

GENERAL INFORMATION.

Bridges and rates of fare are included in report of Boston & Lowell Railroad.

CAPITAL STOCK.

Capital stock authorized by charter	\$2,000,000.00
Capital stock authorized by votes of company	530,000.00
Capital stock issued (number of shares, 5,034); amount paid in	\$503,400.00
Total amount paid in (as per books of the company)	503,400.00
Total number of stockholders	173
Number of stockholders in New Hampshire	128
Amount of stock held in New Hampshire	\$348,700.00

NAMES AND RESIDENCES OF OFFICERS.

J. Thomas Vose, *President*, Boston, Mass.; S. N. Bell, *Treasurer and Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

J. Thomas Vose, Boston, Mass.; Daniel Barnard, Franklin, N. H.; Samuel N. Bell and John C. French, Manchester, N. H.; Daniel Saunders, Lawrence, Mass.; Henry Chandler, Manchester, N. H.; Nathan H. Weeks, Plymouth, N. H.; John J. Cilley, South Deerfield, N. H.; Joseph W. Campbell, Woodstock, N. H.

PROPER ADDRESS OF THE COMPANY :

PEMIGEWASSET VALLEY RAILROAD,

Office of Treasurer and Clerk, MANCHESTER, N. H.

The Pemigewasset Valley Railroad is leased for 99 years to the Boston, Concord & Montreal Railroad, and is operated by the Boston & Lowell Railroad as agent for the Boston, Concord & Montreal Railroad.

S. N. BELL,

Treasurer and Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. January 18, 1887. Then personally appeared S. N. Bell, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

CHAS. E. COCHRAN,

Justice of the Peace.

REPORT

OF THE

PETERBOROUGH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$35,813.54
Total expense (including taxes)	258.94
Net income	35,554.60
Interest accrued during year:	4,059.64
On funded debt	\$3,999.64
On other debt	60.00
Dividends declared (3 per cent)	11,550.00
Balance for the year	19,944.96

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks (treasurer)	\$150.00

Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$588,950.00
Total permanent investments	\$588,950.00
Cash	\$655.37
Bills receivable	200.00
Sinking fund	23,999.64
Debit balances	27,154.53
Total cash assets	52,009.54
Total assets (as per books of the company)	\$640,959.54

LIABILITIES.	
Capital stock	\$385,000.00
Funded debt	54,500.00
Unfunded debt, viz. :	800.00
Dividends unpaid	\$615.00
Vouchers and accounts	5,500.00
	6,115.00
Profit and loss balance (income account not charged off)	194,544.54
Total liabilities (as per books of the company)	\$640,959.54
CAPITAL STOCK.	
Capital stock issued (number of shares, 3,850) ; amount paid in	\$385,000.00
Total amount paid in (as per books of the company)	385,000.00
Total number of stockholders	285
Number of stockholders in New Hampshire	267
Amount of stock held in N. Hampshire	\$273,300.00
DEBT.	
Funded debt, as follows :	
Bonds due Oct. 1, 1897 ; rate of interest, 6 per cent	\$34,000.00
Certificates of indebtedness (notes payable)	1,000.00
Interest paid on same during year	\$60.00
Total amount of funded debt and notes payable, as of Sept. 30, 1886, after collecting six months' rental, due Sept. 30, 1886	35,000.00

NAMES AND RESIDENCES OF OFFICERS.

Edward Spalding, *President*, Nashua, N. H. ; B. B. Whittemore, *Auditor* ; Gilman C. Shattuck, *Treasurer*, Nashua, N. H. ; Harry W. Ramsdell, *Clerk of Corporation*, Nashua, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Edward Spalding, George A. Ramsdell, V. C. Gilman, and Albert McKean, Nashua, N. H. ; John H. George, Concord, N. H. ; S. A. B. Abbott, Boston, Mass. ; Thomas B. Eaton, Worcester, Mass.

PROPER ADDRESS OF THE COMPANY:

PETERBOROUGH RAILROAD,
Treasurer's Office, NASHUA, N. H.

GILMAN C. SHATTUCK,
Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. January 11, 1887. Then personally appeared Gilman C. Shattuck, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE F. ANDREWS, *Justice of the Peace.*

REPORT

OF THE

PETERBOROUGH & HILLSBOROUGH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Interest on funded debt	\$10,725.00
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$209,298.44
Total permanent investments	\$209,298.44
Cash	\$925.00
Debit balances	53,658.83
Total cash assets	54,583.83
Total assets (as per books of the company) .	\$263,882.27
LIABILITIES.	
Capital stock	\$45,000.00
Funded debt	165,000.00
Unfunded debt, viz.:	53,882.27
Interest unpaid	\$45,256.25
Vouchers and accounts	8,626.02
Total liabilities (as per books of the company)	\$263,882.27
DESCRIPTION OF ROAD.	
Main line from Peterborough to Hillsborough. .	18.5 miles.
“ in New Hampshire	18.5 “
Total road belonging to this company	18.5 “

Sidings and other tracks not above enumerated .	1.44 miles.
Same in New Hampshire	1.44 "
Total length of track computed as single track .	19.94 "
Same in New Hampshire	19.94 "

*Roads and Branches belonging to other Companies
operated by this Company under lease or contract.*

Number of stations on all roads owned by this com- pany	5
Same in New Hampshire	5

BRIDGES.

Number of spans of timber bridges of 25 feet and upwards	2
Aggregate length of same for single track 326 ft.	
Number of crossings of highways at grade . . .	19
“ “ “ under railroad . . .	2
Number of crossings at which there are neither sig- nals nor flagmen	19
Number of railroad crossings at grade: . . .	1
Manchester & Keene at Hancock Junction, N. H.	

CAPITAL STOCK.

Capital stock authorized by charter .	\$500,000.00	
Capital stock authorized by votes of company	45,000.00	
Capital stock issued (number of shares, 450); amount paid in		\$45,000.00
Total amount paid in (as per books of the com- pany)		45,000.00
Total number of stockholders	2	

DEBT.

Funded debt, as follows:

First mortgage bonds, due April 30, 1897; rate of interest, 6½ per cent	\$100,000.00
Second mortgage bonds, due April 30, 1897; rate of interest, 6½ per cent	65,000.00
Total amount of funded debt	\$165,000.00

NAMES AND RESIDENCES OF OFFICERS.

Alvah W. Sulloway, *President*, Franklin, N. H.; Edgar H. Wood-
man, *Treasurer and Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

John C. Campbell, Hillsborough, N. H.; George A. Kettell, Charlestown, Mass.; Alvah W. Sulloway, Franklin, N. H.; Josiah H. Benton, Jr., Boston, Mass.; Wyman Pattee, Enfield, N. H.; George E. Todd, Concord, N. H.; William P. Wilson, Lexington, Mass.

PROPER ADDRESS OF THE COMPANY:

PETERBOROUGH & HILLSBOROUGH RAILROAD,
CONCORD, N. H.

A. W. SULLOWAY,
President.
EDGAR H. WOODMAN,
Treasurer.

REPORT

OF THE

WILTON RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.			
Total income	.	.	\$16,950.00
Total expense (including taxes)	.	.	12.25
Net income	.	.	16,937.75
Dividends declared (7 per cent)	.	.	16,800.00
Balance for the year	.	.	1,521.97
Balance-Sheet, September 30, 1886.			
ASSETS.			
Cost of road	.	\$242,600.00	
Total permanent investments	.	.	\$242,600.00
Cash	.	\$1,521.97	
Total cash assets	.	.	1,521.97
Total assets (as per books of the company)	.	.	\$244,121.97
LIABILITIES.			
Capital stock	.	.	\$240,000.00
Dividends unpaid	.	\$990.75	
Vouchers and accounts	.	.	990.75
Profit and loss balance	.	.	3,131.22
Total liabilities (as per books of the company)	.	.	\$244,121.97
DESCRIPTION OF ROAD.			
Main line of road from Nashua to Wilton	.	.	15.5 miles.
“ “ in New Hampshire	.	.	15.5 “
Total road belonging to this company	.	.	15.5 “

CAPITAL STOCK.	
Total amount paid in (as per books of the company)	\$240,000.00
Total number of stockholders	259
Number of stockholders in New Hampshire . .	238
Amount of stock held in New Hampshire	\$238,000

NAMES AND RESIDENCES OF OFFICERS.

Solomon Spalding, *President*; B. B. Whittemore, Gilman C. Shattuck, *Auditors*; Frank A. McKean, *Treasurer*; Archibald H. Dunlap, *Clerk of Corporation*, all of Nashua, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Solomon Spalding, John Reed, John A. Spalding, Nashua, N. H. ; William Ramsdell, Milford, N. H. ; Harvey A. Whiting, Wilton, N. H.

PROPER ADDRESS OF THE COMPANY:

WILTON RAILROAD COMPANY,
NASHUA, N. H.

SOLOMON SPALDING,
WILLIAM RAMSDELL,
JOHN REED,
JOHN A. SPALDING,
HARVEY A. WHITING,
Directors.

FRANK A. McKEAN,
Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. January 10, 1887. Then personally appeared Frank A. McKean, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

IRA F. HARRIS, *Justice of the Peace.*

REPORT

OF THE

BOSTON & MAINE RAILROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$7,543,691.30
Total expense (including taxes)		4,767,299.84
Net income		2,776,391.46
Rentals		1,786,457.75
Eastern Railroad *	\$1,293,377.75	
Worcester, Nashua & Rochester R. R., nine months	187,500.00	
Portland, Saco & Portsmouth R. R.	90,300.00	
Portsmouth, Great Falls & Conway R. R.	45,275.00	
Portsmouth & Dover R. R.	46,140.00	
Lowell & Andover R. R.	52,500.00	
Dover & Winnepesaukee R. R.	29,000.00	
Eastern R. R. in N. H.	22,500.00	
Newburyport City R. R.	6,000.00	
West Amesbury Branch R. R.	5,700.00	
Wolfeborough R. R.	2,240.00	
Boston & Albany R. R.	3,000.00	
Kennebunk & Kennebunkport R. R.	2,925.00	
Interest accrued during year:		289,933.71
On funded debt	279,493.77	
On other debt	10,439.94	
Dividends declared (8½ per cent)		595,000.00
Balance for the year (surplus)		105,000.00
Balance at commencement of year	1,832,184.05	
Deduct:		
Difference between amount received from sale of 70,000 shares of capital stock and the par value of same, the entry		

* Includes Eastern Railroad's proportion of surplus earnings, \$421,340.44.

being made so that ledger may		
show stock liability at par	\$78,725.48	
Old account charged off	10,909.44	
	<u>\$89,634.92</u>	
Balance at commencement of year as so changed		\$1,742,549.13
Balance September 30, 1886 (surplus)		1,847,549.13

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *		\$3,477,249.59
From through passengers (to and from other roads over and beyond this road)		563,036.82
From express and extra baggage		188,381.24
mails		95,448.66
Total earnings from passenger department		4,324,116.31
From local freight (all freight starting from or stopping at any station on this road) *		2,081,281.05
From through freight (to and from other roads over and beyond this road)		848,485.02
Total earnings from freight department		2,929,766.07
Total transportation earnings		7,253,882.38
Rents for use of road		22,403.79
Income from all other sources, viz.:		267,405.13
Investments	\$153,031.48	
Rents of tenements, lands, etc.	82,828.47	
Income from coal-hoisting engines	11,784.90	
Miscellaneous sources	19,760.28	
Total income from all sources		\$7,543,691.30

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks		\$103,377.08
Legal expenses		31,241.70
Insurance		21,484.08
Stationery and printing		30,772.17
Outside agencies and advertising		28,149.89
Contingencies and miscellaneous		45,506.94
Repairs of bridges (including culverts and cattle-guards)		157,939.99
Repairs of buildings		226,878.97
“ fences, road-crossings, and signs		32,375.56
Renewal of rails		113,273.09
Number tons steel laid, new steel	7,671 tons	
“ “ “ old steel	3,375 “	
Total	11,046 tons	
Number tons iron laid, old iron	478 “	

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Renewal of ties		\$128,131.16
Number laid, cross ties	397,214	
" " switch ties	7,505	
Total	404,719	
Repairs of road-bed and track		461,464.00
" locomotives		282,278.31
Fuel for locomotives *		468,943.24
[Tons of coal, 120,607; cords of wood, 1,335.]		
Water supply		47,041.78
Oil and waste		31,378.58
Locomotive service †		360,498.95
Repairs of passenger cars		258,181.50
Passenger-train service †		197,411.59
" supplies		34,886.08
Mileage passenger cars †		11,006.00
Repairs of freight cars		195,242.15
Freight-train service †		212,205.73
" supplies		9,461.20
Mileage freight cars †		67,838.49
Telegraph expenses		51,398.99
Loss and damage, freight and baggage		6,654.27
" " property and cattle		7,509.13
Personal injuries		45,786.23
Agents' and station service †		727,660.74
Station supplies		112,074.87
Total operating expenses		\$4,508,052.46
Taxes, state		184,146.27
" local		75,101.11
Total operating expenses and taxes		\$4,767,299.84
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.		
Other expenditures charged to property account:		
Stock in Orchard Beach R. R	\$632.00	
Real estate at Saco	20,000.00	
" " Portland	18,500.00	
Essex Railroad bonds	42,100.00	
Total charges to property accounts		\$81,232.00
Net addition to property account for the year		\$81,232.00

* Fuel for working-trains is charged to work done.

† Salaries and wages. † Debit balances.

Balance-Sheet, September 30, 1886.

ASSETS.		
Cost of road	\$9,620,937.63	
Cost of equipment	1,308,180.00	
Lands in Dover and Old Orchard	14,132.21	
" Portland	18,500.00	
" Saco	20,000.00	
Stock of Dover & Winnepesaukee R. R.	263,144.48	
Stock of Portland & Rochester R. R.	239,540.56	
Stock and bonds of Newburyport R. R.	302,493.95	
Stock of Danvers R. R. and account " Orchard Beach R. R.	27,430.00	
" Orchard Beach R. R.	49,624.89	
Bonds of Danvers R. R.	125,000.00	
" Essex R. R.	42,100.00	
Steamer Mount Washington and wharves	69,260.24	
Total permanent investments		\$12,100,343.96
Cash	\$215,020.45	
Bills receivable	96,755.41	
Due from agents and companies	477,722.95	
Materials and supplies	808,156.64	
Sinking fund	55,720.08	
Debit balances	150,046.91	
Improvement accounts	1,456,644.62	
Total cash assets		\$3,260,067.06
Total assets (as per books of the company)		\$15,360,411.02
LIABILITIES.		
Capital stock		\$7,000,000.00
Funded debt		4,426,000.00
Unfunded debt, viz.:		2,086,861.89
Interest unpaid	\$80,082.59	
Accrued, not due. \$70,755.09		
Uncalled for 9,327.50		
Rents of other roads accrued, unpaid *	649,423.36	
Dividends unpaid	13,237.00	
Eastern R. R. lease	170,240.33	
Notes payable	300,000.00	
Sinking fund	55,720.08	
Vouchers and accounts	818,158.53	
Profit and loss balance		1,847,549.13
Total liabilities (as per books of the company)		\$15,360,411.02

* Includes Eastern Railroad's proportion of surplus for the year, \$421,340.44.

MILEAGE, TRAFFIC, ETC.	
Passenger-train mileage	3,084,970
Freight-train mileage	1,507,212
Total revenue train mileage	4,592,182
Switching-train mileage	824,075
Other train mileage	181,235
Total train mileage	5,597,492
Number of season-ticket passengers *	2,509,157
Number of local passengers (including season)	16,325,621
Number of through passengers (to and from other roads going over and beyond this road)	696,960
Total number of passengers carried	17,022,581
Local passenger mileage (local passengers carried one mile)	190,847,777
Through passenger mileage (through passengers carried one mile)	33,375,514
Total passenger mileage	224,223,291
Number tons local freight	1,869,032
Number tons through freight (to and from other roads going over and beyond this road)	834,169
Total number tons freight carried	2,703,201
Local freight mileage (tons local freight carried one mile)	74,820,383
Through freight mileage (tons through freight carried one mile) †	54,305,488
Total freight mileage	129,125,871
Average number of persons employed	4,913

DESCRIPTION OF ROAD.

Main line of road from Boston, Mass., to Portland, Me.	115.5 miles.
Main line of road in New Hampshire	34.75 "
" " " Maine	44.0 "
" " " Massachusetts	36.75 "
Double track on main line	70.96 "
Same in New Hampshire	14.89 "
Branches owned by the company, viz.:	
Medford (single track)	2.0 "
Methuen (double track, 1; single track, 2.75)	3.75 "
Great Falls (single track)	2.75 "
Total length of branches owned by company	8.5 "
Total length of branches owned by company in New Hampshire	2.75 "
Total length of branches owned by company in Massachusetts	5.75 "
Double track on branches	1.0 "
Total road belonging to this company ‡	124.0 "

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

‡ 2.75 miles of Methuen Branch are operated by the Manchester & Lawrence Railroad.

Sidings and other tracks not above enumerated .	94.22 miles.
Same in New Hampshire .	20.01 "
Total length of track, computed as single track	290.18 "
Same in New Hampshire .	72.40 "
Total length of steel rails in tracks, not including steel-top rails .	212.69 "
[Weights per yard, 60 and 72 lbs.]	

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Eastern R. R. of Massachusetts and branches, length*	118.32 miles.
Worcester, Nashua & Rochester R. R.,	94.48 "
Eastern R. R. in New Hampshire,	16.08 "
Portland, Saco & Portsmouth R. R.,	50.76 "
Portsmouth, Great Falls & Conway R. R.,	72.86 "
Wolfeborough R. R.,	12.03 "
Chelsea Beach R. R.,	1.78 "
Newburyport City R. R.,	2.24 "
Portsmouth & Dover R. R.,	10.88 "
Danvers R. R.,	9.259 "
Newburyport R. R.,	26.979 "
Lowell & Andover R. R.,	8.73 "
West Amesbury Branch R. R.,	4.5 "
Dover & Winnepesaukee R. R.,	29.0 "
Kennebunk & Kennebunkport R. R.,	4.5 "
Total length of above roads .	462.398 "
" " " in New Hampshire .	195.2 "
" " " in other States .	267.198 "
Eastern R. R. of Mass. and branches in Mass.	118.32 "
Worcester, Nashua & Rochester R. R.,	39.46 "
Chelsea Beach R. R.,	1.78 "
Newburyport City R. R.,	2.24 "
" R. R.,	26.979 "
Danvers R. R.,	9.259 "
Lowell & Andover R. R.,	8.73 "
West Amesbury Branch R. R.,	2.25 "
Portland, Saco & Portsmouth R. R., in Maine.	50.76 "
Portsmouth, Great Falls & Conway R. R.,	2.92 "
Kennebunk & Kennebunkport R. R.,	4.5 "
Total length of above roads .	462.398 "
" " " in New Hampshire .	195.2 "
" " " in Massachusetts .	209.018 "
" " " in Maine .	58.18 "
Total miles of road operated by this company *	583.65 "

* 2.75 miles of Methuen Branch are operated by the Manchester & Lawrence Railroad.

Total miles of road operated by this company in New Hampshire	232.7 miles.
Number of stations in New Hampshire on all roads operated by this company	74
Number of telegraph offices in same	48
Number of stations on all roads owned by this company	62
Same in New Hampshire	18

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives.....	130	103	233
“ passenger cars.....	191	177	368
“ parlor or sleeping cars.....	3	12	15
“ baggage, mail, and express cars	53	37	90
“ freight cars (basis of 8 wheels)..	2,284½	1,919	4,203½
“ other cars.....	232	88	320
Snow-plows	27	14	41

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....				2		2	2	14
Employés			2	5	2	5	10	28
Others.....			3	2	3	2	33	22
			5	9	5	9	45	64

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

November 19, 1885. — John Hamil, a trespasser, was found lying dead between the tracks near Powwow River; he was supposed to have been struck by the night freight train.

December 1. — John E. Littlefield, brakeman, in coupling cars at Greenland, was caught and had his hand crushed.

December 2. — James C. White, an employe, in coupling cars near Portsmouth, was caught by his foot in a frog and run over and killed.

December 7. — James Rollins, a passenger, attempted to get upon a train after it had started from East Kingston, and fell under the wheels and had his left foot cut off.

January 22, 1886. — Clarence Champion, a section-foreman, in getting out of the way of a moving freight train at Milton, fell, and two wheels of the train passed over him, cutting off his leg.

February 7. — Eugene M. Hazeltine, brakeman, fell under a moving train near Hampton, and had one foot badly jammed.

February 9. — Calvin S. Haines, a brakeman, was struck by timber falling from a car, near Ossipee Centre, and had an arm fractured.

February 17. — Augustus L. Whitney, brakeman, fell from the top of a moving freight train near North Wakefield, and was run over, receiving injuries from which he soon afterward died.

February 19. — Stephen E. Jones, an employe, in coupling cars at Portsmouth, slipped and broke one of his legs.

July 8. — James Clark, a trespasser, lying upon the track leading to the engine-house at Portsmouth, was run over and killed by an engine.

July 28. — John Brown and Mrs. Adam Walker, occupants of a buggy, and reputed to have been intoxicated, attempted to cross the tracks in advance of an approaching train at Union, and were struck, the woman being killed and the man severely bruised.

August 23. — E. F. Nute, a passenger, jumped from a train after it had started from Dover and fell, receiving severe injuries on the head.

August 27. — Timothy Sullivan, a trespasser on the tracks at Portsmouth, had both legs cut off by an engine on its way to the engine-house.

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	60	tons.
Average " " " " .	33	"
Maximum weight of tenders full of fuel and water	42 $\frac{1}{2}$	"
Average " " " " .	21	"
Maximum weight of passenger cars . . .	28 $\frac{3}{4}$	"
Average " " " " . . .	21	"
" " of mail and baggage cars . . .	18	"
" " of 8-wheel box freight cars . . .	9 $\frac{1}{2}$	"

Average weight of 4-wheel box freight cars . . .	41 $\frac{1}{2}$ tons.
“ “ of 8-wheel platform cars . . .	71 $\frac{1}{2}$ “
“ “ of 4-wheel “ “ . . .	33 $\frac{3}{4}$ “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46 $\frac{2}{12}$ feet.
Total length of heaviest engine and tender over all “ “ longest “ “ “ “ . . .	58 “
Number of locomotives equipped with train brake .	130
[Kind of brake, Westinghouse and Smith's vacuum.]	
Number of cars equipped with train brake . . .	473
[Kind of brake, Westinghouse and Smith's vacuum.]	
Number of passenger cars with Miller platform and buffer	376
Number of miles of road operated by this company not furnished with telegraph facilities	6.5 miles.
From Bradford, Mass., to Georgetown, Mass.	

BRIDGES.

Number of trestle bridges of 25 feet length and up- wards *	1
Aggregate length of same for single track 72 ft.	
Number of spans of iron bridges of 25 feet and up- wards *	5
Aggregate length of same for single track 185 ft.	
“ “ “ “ double “ 321 ft.	
Number of spans of timber bridges of 25 feet and up- wards *	3
Aggregate length of same for single track 266 ft.	
Number of crossings of highways at grade * . . .	43
“ “ “ “ over railroad . . .	9
“ “ “ “ under “ . . .	3
“ of highway bridges 18 feet above track . . .	1
“ of highway bridges less than 18 feet above track	8
Number of crossings at which gates or flagmen are maintained	16
Number of crossings at which there are neither sig- nals nor flagmen *	27
Number of railroad crossings at grade : * . . .	1
Concord R. R., Newmarket Junction.	
Number of railroad crossings over other railroads : *	1
Portsmouth, Great Falls & Conway Railroad, Salmon Falls.	

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company *	2.14 cents.
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*On miles of road owned in New Hampshire.

Average rate of fare per mile received from passengers to and from other roads	1.687 cents.
Average rate of fare per mile for season-ticket passengers * . . . . .	.731 "
Average rate of fare per mile received from all passengers	1.802 "
Average rate of local freight per ton per mile †	2.782 "
Average rate of freight per ton per mile received from freight to and from other roads	1.562 "
Average rate of freight per ton per mile received from all freight	2.269 "

CAPITAL STOCK.

Capital stock authorized by charter	\$7,000,000.00
Capital stock authorized by votes of company	7,000,000.00
Capital stock issued (number of shares, 70,000); amount paid in	\$7,000,000.00
Total amount paid in (as per books of the company)	7,000,000.00
Total number of stockholders	4,038
Number of stockholders in New Hampshire	1,171
Amount of stock held in New Hampshire	\$1,388,400.00

DEBT.

Funded debt, as follows:	
Bonds due January 1, 1893; rate of interest, 7 per cent	\$1,500,000.00
Interest accrued on same during year	\$105,000.00
Bonds due January 1, 1894; rate of interest, 7 per cent	2,000,000.00
Interest accrued on same during year	\$140,000.00
Improvement bonds, due February 2, 1905; rate of interest, 4 per cent	926,000.00
Interest accrued on same during year	\$34,493.77
Total amount of funded debt	\$4,426,000.00

NAMES AND RESIDENCES OF OFFICERS.

George C. Lord, *President*, Newton, Mass.; James T. Furber, *General Manager*, Lawrence, Mass.; William J. Hobbs, *Auditor*, Malden, Mass.; William Merritt, Jr., *Superintendent Western Division*, Boston, Mass.; Daniel W. Sanborn, *Superintendent Eastern Division*, Portland, Me.; John W. Sanborn, *Superintendent North-*

* Reckoning twelve passengers per week for time of each season ticket.

† Rates as per tariff.

ern Division, Wolfeborough Junction, N. H.; Charles Howard, Superintendent Worcester, Nashua & Portland Division, Worcester, Mass. — *Superintendents*; W. J. C. Kenney, *General Freight Agent*, Danvers, Mass.; Dana J. Flanders, *General Passenger Agent*, Malden, Mass.; Amos Blanchard, *Treasurer*, Lowell, Mass.; Chauncey P. Judd, *Clerk of Corporation*, Reading, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George C. Lord, Newton, Mass.; Nathaniel G. White,* Lawrence, Mass.; Amos Paul, South Newmarket, N. H.; Nathaniel J. Bradlee, Boston, Mass.; William S. Stevens, Dover, N. H.; James R. Nichols, Haverhill, Mass.; Joseph S. Ricker, Deering, Me.; Samuel C. Lawrence, Medford, Mass.; Richard Olney, Boston, Mass.; Frank Jones, Portsmouth, N. H.

PROPER ADDRESS OF THE COMPANY:

BOSTON & MAINE RAILROAD,
BOSTON, MASS.

GEORGE C. LORD,
President.

AMOS BLANCHARD,
Treasurer.

JAMES T. FURBER,
General Manager.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, November 22, 1886. Then personally appeared George C. Lord, Amos Blanchard, and James T. Furber, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

SAMUEL B. HILDRETH, *Justice of the Peace.*

* Deceased.

REPORT

OF THE

DOVER & WINNIPESAUKEE RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$30,393.35
Total expense (including taxes)	388.13
Net income	30,005.22
Dividends declared (6 per cent)	28,800.00
Balance for the year (surplus)	1,205.22
Balance at commencement of year	\$22,478.40
Balance September 30, 1886 (surplus)	23,683.62
ANALYSIS OF EARNINGS.	
Rents for use of road	\$29,000.00
Income from all other sources, viz. :	1,393.35
Rents of tenements	\$394.35
Interest and dividends	999.00
Total income from all sources	\$30,393.35
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$75.00
Contingencies and miscellaneous	1.50
Repairs of buildings	240.51
Total expenses	\$317.01
Taxes, local	71.12
Total expenses and taxes	\$388.13
PROPERTY ACCOUNTS : CHARGES AND CREDITS DURING THE YEAR.	
Expenditures charged to property account :	\$1,254.37
\$1,000 U. S. 4 per cent bond	\$1,254.37
Net addition to property account for the year	1,254.37

Balance-Sheet, September 30, 1886.**ASSETS.**

Cost of road	\$480,000.00	
Land and buildings in Alton, N. H.	5,000.00	
Stock of Dover & Winnepesaukee R. R.	12,815.00	
“ Atchison, Topeka & Santa Fe R.R.	1,183.00	
Bonds of United States	4,061.87	
Total permanent investments		\$503,059.87
Cash	\$623.75	
Total cash assets		623.75
Total assets (as per books of the company)		\$503,683.62

LIABILITIES.

Capital stock	\$480,000.00
Profit and loss balance	23,683.62
Total liabilities (as per books of the company)	\$503,683.62

MILEAGE, TRAFFIC, ETC.

This road is leased to and operated by the Boston & Maine Railroad. All traffic statistics are included in the report of that corporation.

DESCRIPTION OF ROAD.

Main line of road from Dover, N. H., to Alton Bay, N. H.	29.0 miles.
Main line of road in New Hampshire	29.0 “
Total road belonging to this company	29.0 “
Sidings and other tracks not above enumerated	3.72 “
Same in New Hampshire	3.72 “
Total length of track, computed as single track	32.72 “
Same in New Hampshire	32.72 “

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Number of stations on all roads owned by this company	10
Same in New Hampshire	10

CAPITAL STOCK.

Capital stock authorized by charter	\$480,000.00
“ authorized by votes of company	480,000.00

Capital stock issued (number of shares, 4,800); amount paid in	\$480,000.00
Total amount paid in (as per books of the com- pany)	480,000.00
Total number of stockholders	137
Number of stockholders in New Hampshire	107
Amount of stock held in N. Hampshire	\$234,200.00

NAMES AND RESIDENCES OF OFFICERS.

William Hale, *President*, Dover, N. H.; George W. Benn, *Treasurer and Clerk of Corporation*, Dover, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

William Hale, Dover, N. H.; George C. Lord, Newton, Mass.; John McDuffee, Rochester, N. H.; Elisha R. Brown, Dover, N. H.; Charles W. Woodman, Dover, N. H.; Amos Paul, South Newmarket, N. H.; William S. Stevens, Dover, N. H.

PROPER ADDRESS OF THE COMPANY:

DOVER & WINNIPISSEOGEE RAILROAD,
DOVER, N. H.

GEORGE W. BENN,
Treasurer.

STATE OF NEW HAMPSHIRE.

STRAFFORD, ss. November 12, 1886. Then personally appeared George W. Benn, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

ELI V. BREWSTER,
Justice of the Peace.

REPORT

OF THE

EASTERN RAILROAD COMPANY IN NEW HAMPSHIRE

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$22,613.50
Total expense (including taxes)	466.50
Net income	22,147.00
Dividends declared, 4½ per cent	
ANALYSIS OF EARNINGS.	
Rents for use of road	\$22,500.00
Income from all other sources	113.50
Total income from all sources	\$22,613.50
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$780,535.36
Cash	4,792.63
Total cash assets	\$785,327.99
LIABILITIES.	
Capital stock	\$492,500.00
Dividends unpaid	2,707.21
Profit and loss balance	290,120.78
Total liabilities (as per books of the company)	\$785,327.99

DESCRIPTION OF ROAD.	
Main line of road from New Hampshire state line to Maine state line	16.08 miles.
Track completed.	
Double track on main line	5.94 "
Same in New Hampshire	5.94 "
Sidings and other tracks not above enumerated	10.51 "
Total length of track, computed as single track	32.53 "
Total length of steel rails in tracks, not including steel-top rails	22.56 "
[Weights per yard, 58, 60, 63, and 67.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Number of stations in New Hampshire on all roads operated by this company	6
Number of telegraph offices in same	6
Number of stations on all roads owned by this company	6
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards	1
Aggregate length of same for single track	429 feet.
Number of spans of iron bridges of 25 feet and upwards	1
Aggregate length of same for single track	37 feet.
Number of spans of timber bridges of 25 feet and upwards	2
Aggregate length of same for single track	95 feet.
Number of crossings of highways at grade	16
" " " over railroad	5
" " " under "	1
Number of highway bridges less than 18 feet above track	5
Number of crossings at which gates or flagmen are maintained	12
Number of crossings at which there are neither signals nor flagmen	4
Number of railroad crossings at grade:	1
Concord & Portsmouth, at Portsmouth.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$500,000.00
Capital stock authorized by votes of company	500,000.00
Capital stock issued; amount paid in	\$492,500.00
Total number of stockholders	403
Number of stockholders in New Hampshire	218
Amount of stock held in " "	\$300,800.00

NAMES AND RESIDENCES OF OFFICERS.

Moody Currier, *President*, Manchester, N. H. ; Edward A. Abbot, *Treasurer*, Concord, N. H. ; W. H. Hackett, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Moody Currier, Manchester, N. H. ; Dexter Richards, Newport, N. H. ; Edward L. Giddings, Beverly, Mass. ; Edward A. Abbot, Concord, N. H. ; William H. Goodwin, Boston, Mass. ; Frank A. Philbrick, Rye, N. H. ; Samuel C. Eastman, Concord, N. H.

PROPER ADDRESS OF THE COMPANY :

EASTERN RAILROAD IN NEW HAMPSHIRE,

52 OLIVER STREET, BOSTON, MASS.

SAMUEL C. EASTMAN,
EDWARD A. ABBOT,
WM. H. GOODWIN,

Directors.

EDWARD A. ABBOT,

Treasurer.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, November 10, 1886. Then personally appeared Samuel C. Eastman, Edward A. Abbot, and William H. Goodwin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

HENRY BRADLEE,

Justice of the Peace.

REPORT

OF THE

PORTSMOUTH & DOVER RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
(The Portsmouth & Dover Railroad is leased to the Eastern Railroad in New Hampshire at 6 per cent on \$769,000.00 per annum.)		
Total income		\$46,140.00
Net income		46,140.00
Dividends declared (6 per cent)		46,140.00
Balance at commencement of year	\$2,790.05	
Add	112.70	
Balance at commencement of year as so changed		\$2,902.75
Balance September 30, 1886		2,902.75
Balance-Sheet, September 30, 1886.		
ASSETS.		
Cost of road	\$768,400.00	
Total permanent investments		\$768,400.00
Cash	\$3,523.75	
Bills receivable	600.00	
		4,123.75
Total assets (as per books of the company)		\$772,523.75
LIABILITIES.		
Capital stock		\$769,000.00
Unfunded debt, viz.:		621.00
Dividends unpaid	\$621.00	
Profit and loss balance		2,902.75
Total liabilities (as per books of the company)		\$772,523.75

DESCRIPTION OF ROAD.	
Main line of road from Portsmouth to Dover . . .	10.88 miles.
“ “ in New Hampshire . . .	10.88 “
Total road belonging to this company . . .	10.88 “
Sidings and other tracks not above enumerated . . .	2.0 “
Same in New Hampshire . . .	2.0 “
Total length of track, computed as single track . . .	12.88 “
Same in New Hampshire . . .	12.88 “
Total length of steel rails in tracks, not including steel-top rails . . .	2.55 “
[Weights per yard, 58 and 60 lbs.]	
Number of stations in New Hampshire on all roads operated by this company . . .	5
Number of stations on all roads owned by this company . . .	5
Same in New Hampshire . . .	5
BRIDGES.	
Number of trestle bridges of 25 feet length and up- wards * . . .	1
Number of spans of timber bridges of 25 feet and upwards * . . .	7
Aggregate length of same for single track 620 ft.	
Number of crossings of highways at grade * . . .	10
“ “ “ “ over railroad . . .	1
Number of highway bridges less than 18 feet above track . . .	1
Number of crossings at which gates or flagmen are maintained . . .	4
Number of crossings at which there are neither sig- nals nor flagmen * . . .	6
CAPITAL STOCK.	
Capital stock authorized by charter . . .	\$769,000.00
Capital stock authorized by votes of company . . .	769,000.00
Capital stock issued (number of shares, 7,690); amount paid in . . .	\$769,000.00
Total amount paid in (as per books of the com- pany) . . .	769,000.00
Total number of stockholders . . .	159
Number of stockholders in New Hampshire . . .	149
Amount of stock held in “ . . .	\$751,500.00

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF OFFICERS.

Frank Jones, *President*, Portsmouth, N. H. ; George L. Treadwell, *Treasurer*, Portsmouth, N. H. ; Calvin Page, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Frank Jones, Daniel Marcy, Joseph A. Walker, and Marcellus Eldredge, Portsmouth, N. H. ; Charles H. Sawyer, Frank A. Christie, and Richard N. Ross, Dover, N. H.

PROPER ADDRESS OF THE COMPANY :

PORTSMOUTH & DOVER RAILROAD,
PORTSMOUTH, N. H.

FRANK JONES,

President.

GEORGE L. TREADWELL,

Treasurer.

STATE OF NEW HAMPSHIRE.

ROCKINGHAM, ss. December 1, 1886. Then personally appeared Frank Jones, president, and George L. Treadwell, treasurer, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

CALVIN PAGE, *Justice of the Peace.*

REPORT

OF THE

PORTSMOUTH, GREAT FALLS & CON- WAY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$45,069.32
Net income	45,069.32
Interest accrued during the year on funded debt	45,000.00
Balance for the year	69.32
Balance at commencement of year as so changed	648.36
Balance September 30, 1886	717.68

ANALYSIS OF EARNINGS.	
Rents for use of road	\$45,000.00
Income from all other sources, viz. :	69.32
Interest on deposit at bank	\$69.32
Total income from all sources	\$45,069.32

(This road is operated by the Boston & Maine Railroad as one line between North Conway & Boston. The receipts and expenses are included in the returns of that road. This road receives a rental therefor, payable semi-annually, of \$45,000, which pays the interest on its funded debt of \$1,000,000.)

Balance Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$2,086,250.00
Cost of equipment	64,050.00
Total permanent investments	\$2,150,300.00

Cash	2,236.43
Total assets (as per books of the company) .	\$2,152,536.43
LIABILITIES.	
Capital stock	\$1,150,300.00
Funded debt	1,000,000.00
Unfunded debt, interest coupons unpaid	1,518.75
Profit and loss balance	717.68
Total liabilities (as per books of the company)	\$2,152,536.43
DESCRIPTION OF ROAD.	
Main line of road from Conway Junction to North Conway	72.86 miles.
Main line of road in New Hampshire	69.94 "
" " in Maine	2.92 "
Total road belonging to this company	72.86 "
Sidings and other tracks not above enumerated .	10.14 "
Same in New Hampshire	8.58 "
Total length of track, computed as single track .	83.0 "
Same in New Hampshire	78.52 "
Total length of steel rails in tracks, not including steel-top rails	25.78 "
[Weights per yard, 58 and 60 lbs.]	
Number of stations on all roads owned by this company	18
Same in New Hampshire	17
EQUIPMENT.	
This road owns a small amount of equipment, which is included in the lease to the Eastern Railroad Co., but the lessees furnishing the necessary equipment, the detail of the small part in service which is owned by this company would convey no useful information. The whole is shown in reports of the Boston & Maine Railroad, to which it has been re-leased.	
STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.	
Included in Boston & Maine Railroad report.	
GENERAL INFORMATION.	
Included in Boston & Maine Railroad report.	

BRIDGES BUILT WITHIN THE YEAR IN NEW HAMPSHIRE.

Location.	Kind.	Material.	Length.	When built.
Milton Three Ponds.....	Pile.	Wood.	240 feet.	1886.

BRIDGES.

Number of trestle bridges of 25 feet length and upwards *	12
Aggregate length of same for single track 3,512 ft.	
Number of spans of iron bridges of 25 feet and upwards *	8
Aggregate length of same for single track 626 ft.	
Number of spans of timber bridges of 25 feet and upwards *	10
Aggregate length of same for single track 512 ft.	
Number of crossings of highways at grade* . .	68
“ “ over railroad . .	3
“ “ under “ . .	5
“ highway bridges 18 feet above track . .	1
“ “ less than 18 feet above track . .	2
Number of crossings at which gates or flagmen are maintained . .	2
Number of crossings at which there are neither signals nor flagmen* . .	66
Number of railroad crossings at grade* : . .	1
Portland & Rochester, at Rochester.	
Number of railroad crossings under other railroads* : Boston & Maine, at Salmon Falls.	1

CAPITAL STOCK.

Capital stock authorized by votes of company	\$1,150,300.00	
Total amount paid in (as per books of the company)		\$1,150,300.00
Total number of stockholders	440	
Number of stockholders in New Hampshire . .	85	
Amount of stock held in New Hampshire	\$127,000	

DEBT.

Funded debt, as follows :		
Bonds due June 1, 1937 ; rate of interest, $4\frac{1}{2}$ per cent per annum		\$1,000,000.00
Total amount of funded debt		1,000,000.00

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF OFFICERS.

Arthur Sewall, *President*, Bath, Me.; N. G. Chapin, *Treasurer*, Brookline, Mass.; Wallace Hackett, *Clerk of Corporation*, Portsmouth, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Arthur Sewall, Bath, Me.; Samuel C. Lawrence, Medford, Mass.; Frank Jones, Portsmouth, N. H.; John W. Sanborn, Wakefield, N. H.; Charles H. Sawyer, Dover, N. H.

PROPER ADDRESS OF THE COMPANY:

PORTSMOUTH, GREAT FALLS & CONWAY RAILROAD,
CAUSEWAY STREET, BOSTON, MASS.

ARTHUR SEWALL,
President.
N. G. CHAPIN,
Treasurer.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. November 24, 1886. Then personally appeared Arthur Sewall, president, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

N. G. CHAPIN, *Justice of the Peace.*

STATE OF MASSACHUSETTS.

SUFFOLK, ss. November 24, 1886. Then personally appeared N. G. Chapin, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

FRANCIS I. AMORY,
Justice of the Peace.

REPORT

OF THE

WEST AMESBURY BRANCH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$5,700.00
Total expense (including taxes)	588.65
Net income	5,111.35
Interest accrued during year:	3,990.00
On funded debt	\$3,990.00
Dividends declared (2 per cent)	1,140.00
Balance for the year (deficit)	18.65
Balance at commencement of year	\$191.87
Balance at commencement of year as so changed	191.87
Balance September 30, 1886	173.22

ANALYSIS OF EARNINGS.

Rents for use of road	\$5,700.00
Total income from all sources	5,700.00

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$50.00
Legal expenses	80.00
Stationery and printing	1.50
Total operating expenses	\$131.50
Taxes, state	457.15
Total operating expenses and taxes	\$588.65

Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$114,000.00
Total permanent investments	\$114,000.00
Cash	\$323.22
Total cash assets	323.22
Total assets (as per books of the company)	\$114,323.22
LIABILITIES.	
Capital stock	\$57,000.00
Funded debt	57,000.00
Unfunded debt, viz.:	
Interest unpaid	\$63.00
Dividends unpaid	87.00
	150.00
Profit and loss balance	173.22
Total liabilities (as per books of the company)	\$114,323.22
DESCRIPTION OF ROAD.	
Main line of road from Merrimac to Newton, N. H.	4.45 miles.
“ “ in Massachusetts	2.13 “
“ “ in New Hampshire	2.32 “
Sidings and other tracks not above enumerated . . . . .	.49
Same in New Hampshire . . . . .	.38
Total length of track, computed as single track	4.94
Same in New Hampshire	2.7
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Number of stations on all roads owned by this company	2
Same in New Hampshire	1
CAPITAL STOCK.	
Capital stock authorized by charter	\$150,000.00
Capital stock authorized by votes of company	114,000.00
Capital stock issued (number of shares, 570); amount paid in	\$57,000.00
Total amount paid in (as per books of the company)	57,000.00
Total number of stockholders	31
Number of stockholders in New Hampshire	2
Amount of stock held in “ “	\$700.00

DEBT.	
Funded debt, as follows :	
Bonds due July 1, 1893 ; rate of interest, 7 per cent	\$57,000.00
Interest paid on same during year \$3,962.00	
Total amount of funded debt	57,000.00

NAMES AND RESIDENCES OF OFFICERS.

William H. Haskell, *President*; Daniel J. Poore, *Treasurer and Clerk of Corporation*.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

William H. Haskell, Benjamin F. Sargent, Albert Sargent, John Cleary, Merrimac, Mass. ; Michael F. Hoyt, Atkinson, N. H.

PROPER ADDRESS OF THE COMPANY :

WEST AMESBURY BRANCH RAILROAD COMPANY,
MERRIMAC, ESSEX CO., MASS.

WILLIAM H. HASKELL,
ALBERT SARGENT,
JOHN CLEARY,
Directors.

DANIEL J. POORE,
Treasurer.

STATE OF NEW HAMPSHIRE.

ESSEX, ss. November 9, 1886. Then personally appeared William H. Haskell, Albert Sargent, and John Cleary, directors, and Daniel J. Poore, treasurer, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JAMES D. PIKE,
Notary Public

REPORT

OF THE

WOLFEBOROUGH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$23,130.00
Net income	23,130.00
Dividends declared (6 per cent)	23,130.00
ANALYSIS OF EARNINGS.	
Rents for use of road	\$23,130.00
Total income from all sources	23,130.00
Leased to the Eastern Railroad for annual rental of \$6.00 per share per annum, payable semi-annually, and included in the Eastern lease to the Boston & Maine on same terms.	
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$385,500.00
Cash	96.00
Total assets (as per books of the company)	\$385,596.00
LIABILITIES.	
Capital stock	\$385,500.00
Dividends unpaid	96.00
Total liabilities (as per books of the company)	\$385,596.00

DESCRIPTION OF ROAD.

Main line of road from Wolfeborough Junction to Wolfeborough	12.03 miles.
Main line of road in New Hampshire	12.03 "
Total road belonging to this company	12.03 "
Sidings and other tracks not above enumerated . . . . .	.8 "
Same in New Hampshire . . . . .	.8 "
Total length of track, computed as single track	12.83 "
Same in New Hampshire	12.83 "
Number of stations on all roads owned by this company	4
Same in New Hampshire	4

No equipment.

STATEMENT OF ACCIDENTS IN NEW HAMPSHIRE.

Included in report of Boston & Maine Railroad.

BRIDGES.

Number of trestle bridges of 25 feet length and upwards *	5
Aggregate length of same for single track 383 ft.	
Number of spans of timber bridges of 25 feet and upwards *	2
Aggregate length of same for single track 62 ft.	
Number of crossings of highways at grade *	11
Number of crossings at which there are neither signals nor flagmen *	11

CAPITAL STOCK.

Capital stock authorized by votes of company	\$385,500.00
Capital stock issued (number of shares, 3,855); amount paid in	\$385,500.00
Total amount paid in (as per books of the company)	385,500.00
Total number of stockholders	84
Number of stockholders in New Hampshire	66
Amount of stock held in New Hampshire	\$27,300.00

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF OFFICERS.

Arthur Sewall, *President*, Bath, Me.; N. G. Chapin, *Treasurer*, Brookline, Mass.; John L. Peavey, *Clerk of Corporation*, Wolfeborough, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Arthur Sewall, Bath, Me.; Charles H. Sawyer, Dover, N. H.; Frank Jones, Portsmouth, N. H.; John M. Brackett, Wolfeborough, N. H.; Saml. C. Lawrence, Medford, Mass.; Joseph L. Avery, Wolfeborough, N. H.; John W. Sanborn, Wakefield, N. H.

PROPER ADDRESS OF THE COMPANY:

WOLFEBOROUGH RAILROAD,

N. G. CHAPIN, *Treasurer*, CAUSEWAY STREET, BOSTON, MASS.

ARTHUR SEWALL,

President.

N. G. CHAPIN,

Treasurer.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. November 24, 1886. Then personally appeared Arthur Sewall, president, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

N. G. CHAPIN, *Justice of the Peace.*

STATE OF MASSACHUSETTS.

SUFFOLK, ss. November 24, 1886. Then personally appeared N. G. Chapin, treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

FRANCIS I. AMORY, *Justice of the Peace.*

REPORT

OF THE

WORCESTER, NASHUA & ROCHESTER RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$369,042.36
Total expense (including taxes)		104,528.59
Net income		264,513.77
Interest accrued during the year:		82,991.04
On funded debt	\$79,666.66	
On other debt	3,324.38	
Dividends declared (3 per cent)		91,869.00
Balance for the year		89,653.73
Balance at commencement of year	\$90,236.21	
Deduct:		
For personal injuries, legal expenses, re- bates on freight, Clinton wash-out, etc.	\$29,841.84	
Charged profit and loss on account of distribution of stock	278,000.00	
	\$307,841.84	
Balance at commencement of year as so changed		217,605.63
Balance September 30, 1886 (deficit)		127,951.90

(The railroad and property of this company has been leased to the Boston & Maine Railroad, and has been operated by said railroad since January 1, 1886; consequently comparisons of earnings, expenses, etc., cannot be made with the previous year.)

ANALYSIS OF EARNINGS.

From local passengers, three months (all passengers starting from or stopping at any station on this road)	\$21,150.21
From through passengers, three months (to and from other roads over and beyond this road)	26,599.08
From express and extra baggage	2,393.54
From mails	3,017.65
From other sources, passenger department	555.01
Total earnings from passenger department	53,715.49
From local freight (all freight starting from or stopping at any station on this road)	24,405.09
From through freight (to and from other roads over and beyond this road)	86,108.53
From other sources, freight department	4,604.73
Total earnings from freight department	115,118.35
Total transportation earnings	168,833.84
Rents for use of road, nine months	187,500.00
Income from all other sources, viz.:	12,708.52
Rent of land and buildings	\$2,208.52
Premium on bonds	10,500.00
Total income from all sources	\$369,042.36

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$7,687.93
Legal expenses	517.23
Insurance	407.00
Stationery and printing	1,017.15
Outside agencies and advertising	813.20
Contingencies and miscellaneous	2,299.07
Repairs of bridges (including culverts and cattle-guards)	1,124.33
Repairs of buildings	1,407.39
Repairs of fences, road-crossings, and signs	896.34
Renewal of rails	4,610.40
[No. tons steel laid, 439.]	
Renewal of ties	1,955.39
[No. laid, 4,888.]	
Repairs of road-bed and track	11,022.56
Repairs of locomotives	4,157.38
Fuel for locomotives	15,865.41
[Tons of coal, 3,777.]	
Water supply	724.71
Oil and waste	586.23
Locomotive service	8,831.32
Repairs of passenger cars	2,558.56
Passenger-train service	3,761.37
" supplies	840.23

Repairs of freight cars	\$3,246.88
Freight-train service	12,043.18
" supplies	398.77
Mileage freight cars	6,391.59
Telegraph expenses	743.23
Loss and damage, freight and baggage	39.02
" " property and cattle	78.00
Personal injuries	147.00
Agents' and station service	9,223.85
Station supplies	1,034.77
Total operating expenses	\$104,429.49
Taxes, local	99.10
Total operating expenses and taxes	\$104,528.59

Balance-Sheet, September 30, 1886.

ASSETS.		
Cost of road	\$4,138,584.99	
Cost of equipment	415,336.03	
Total permanent investments		\$4,553,921.02
Cash	\$16,025.47	
Debit balances	64,149.11	
Worcester, Nashua & Rochester Rail- road stock	35,300.00	
Total cash assets		115,474.58
Profit and loss balance		127,951.90
Total assets (as per books of the company)		\$4,797,347.50
LIABILITIES.		
Capital stock	\$3,099,800.00	
Funded debt	1,662,000.00	
Unfunded debt, viz.:	35,547.50	
Interest unpaid	\$3,547.50	
Notes payable	32,000.00	
Total liabilities (as per books of the company)		\$4,797,347.50
<i>Present or Contingent Liabilities not Included in the Balance-Sheet.</i>		
Bonds guaranteed by this company, or a lien on its road, viz.:	\$575,000.00	
Nashua & Rochester.		
Total (not included in Balance-Sheet)		\$575,000.00

MILEAGE, TRAFFIC, ETC.	
Passenger-train mileage, three months, to January 1, 1886	62,339
Freight-train mileage	65,762
Total revenue train mileage	128,101
Switching-train mileage	36,703
Other train mileage	2,529
Total train mileage	167,333
Number of season-ticket passengers	17,992
Number of local passengers (including season)	71,596
Number of through passengers (to and from other roads going over and beyond this road)	37,257
Total number of passengers carried	108,853
Local passenger mileage (local passengers carried one mile)	868,520
Through passenger mileage (through passengers carried one mile)	910,241
Total passenger mileage	1,778,761
Number tons local freight	16,523
Number tons through freight (to and from other roads going over and beyond this road)	107,618
Total number tons freight carried	124,141
Local freight mileage (tons local freight carried one mile)	604,458
Through freight mileage (tons through freight carried one mile)	3,647,113
Total freight mileage	4,251,571
Average number of persons employed	400

DESCRIPTION OF ROAD.

Main line of road from Worcester, Mass., to Rochester, N. H.	94.48 miles.
Main line of road in New Hampshire	55.02 "
" " in Massachusetts	39.46 "
Double track on main line	18.13 "
Total road belonging to this company	94.48 "
Sidings and other tracks not above enumerated	20.10 "
Same in New Hampshire	7.6 "
Total length of track, computed as single track	132.71 "
Same in New Hampshire	62.62 "
Total length of steel rails in tracks, not including steel-top rails	79.23 "
[Weights per yard, 56 to 60 lbs.]	

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Total miles of road operated by this company to January 1, 1886	94.48 miles.
Total miles of road operated by this company in New Hampshire to January 1, 1886	55.02 "

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives		24	24
“ passenger cars		19	19
“ parlor or sleeping cars		3	3
“ baggage, mail, and express cars.		9	9
“ freight cars (basis of 8 wheels) ...		417½	417½

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

November 6, 1885.—Patrick Keating, freight conductor, was injured while coupling cars at Hampstead. Not seriously injured.

November 29.—James Coffey killed at Ash-street crossing in Nashua by falling in front of switch-engine, cars and engine passing over his body.

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	120,000 lbs.
Average “ “ “ “	96,057 “
Maximum weight of tenders full of fuel and water	40,000 “
Average “ “ “ “	33,437 “
Maximum weight of passenger cars	54,000 “
Average “ “	40,200 “
“ “ mail and baggage cars	33,427 “
“ “ 8-wheel box freight cars	17,000 “
“ “ 4-wheel “ “	9,150 “
“ “ 8-wheel platform cars	14,000 “
“ “ 4-wheel “ “	8,000 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	45 feet.
Total length of heaviest engine and tender over all	55 “
Number of locomotives equipped with train brake .	5
[Kind of brake, Westinghouse automatic.]	
Number of cars equipped with train brake . .	26
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer	21

BRIDGES.

Number of trestle bridges of 25 feet length and upwards	14
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Aggregate length of same for single track, 1,398.14 feet.	
Number of spans of timber bridges of 25 feet and upwards	15
Number of crossings of highways at grade	98
“ “ “ over railroad	3
“ “ “ under “	2
“ highway bridges 18 feet above track	3
Number of highway bridges less than 18 feet above track	2
Number of crossings at which gates or flagmen are maintained	5
Number of crossings at which there are neither signals nor flagmen	5
Number of railroad crossings at grade :	3

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company	3.16 cents.
Average rate of fare per mile received from passengers to and from other roads	2.76 “
Average rate of fare per mile for season-ticket passengers . . . . .	.89 “
Average rate of fare per mile received from all passengers	2.73 “
Average rate of local freight per ton per mile	3.54 “
Average rate of freight per ton per mile received from freight to and from other roads	2.12 “
Average rate of freight per ton per mile received from all freight	2.31 “

CAPITAL STOCK.

Capital stock authorized by charter	\$3,600,000.00	
Capital stock authorized by votes of company	3,099,800.00	
Capital stock issued (number of shares, 30,998); amount paid in		\$3,099,800.00
Total amount paid in (as per books of the company)		3,099,800.00
Total number of stockholders	818	
Number of stockholders in New Hampshire	205	
Amount of stock held in “ “	\$339,500.00	

DEBT.	
Funded debt, as follows:	
Mortgage bonds, due on demand	\$12,000.00
Mortgage bonds due May 1, 1887; rate of interest, 5 per cent	275,000.00
Interest paid on same during year . . . \$13,750.00	
Mortgage bonds due April 1, 1893; rate of interest, 5 per cent	250,000.00
Interest paid on same during year . . . \$12,500.00	
Mortgage bonds due February 1, 1895; rate of interest, 5 per cent	400,000.00
Interest paid on same during year . . . \$20,000.00	
Mortgage bonds due April 1, 1894; rate of interest, 5 per cent	575,000.00
Interest paid on same during year . . . \$32,916.66	
Mortgage bonds due January 1, 1906; rate of interest, 4 per cent	150,000.00
Interest paid on same during year . . . \$500.00	
Total amount of funded debt	\$1,662,000.00

NAMES AND RESIDENCES OF OFFICERS.

Charles A. Sinclair, *President*, Portsmouth, N. H.; T. W. Hammond, *Treasurer and Clerk of Corporation*, Worcester, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Charles A. Sinclair, Frank Jones, Portsmouth, N. H.; George W. Armstrong, Brookline, Mass.; Frank A. McKean, Charles Holman, John A. Spalding, Nashua, N. H.; George C. Lord, Newton, Mass.; James P. Cook, Salem, Mass.; Elijah B. Stoddard, Worcester, Mass.

PROPER ADDRESS OF THE COMPANY:

WORCESTER, NASHUA & ROCHESTER RAILROAD
COMPANY,
WORCESTER, MASS.

CHARLES A. SINCLAIR,
GEORGE W. ARMSTRONG,
J. A. SPALDING,
CHARLES HOLMAN,
E. B. STODDARD,

Directors.

T. W. HAMMOND,

Treasurer.

STATE OF NEW HAMPSHIRE.

WORCESTER, ss. December 21, 1886. Then personally appeared Charles A. Sinclair, George W. Armstrong, J. A. Spalding, Charles Holman, E. B. Stoddard, and T. W. Hammond, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

EDWARD DAVIS STODDARD,

Justice of the Peace.

REPORT

OF THE

CHESHIRE RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$628,072.45
Total expense (including taxes)	393,633.63
Net income	234,438.82
Rentals:	51,727.95
V. & M. R. R. \$51,000.00	
M. R. R. 727.95	
Interest accrued during year	48,000.00
Dividends declared (5 per cent)	105,000.00
Balance for the year (surplus)	29,710.87
Balance at commencement of year \$65,590.90	
Balance at commencement of year as so changed	65,590.90
Balance September 30, 1886 (surplus)	95,301.77
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$41,821.25
From through passengers (to and from other roads over and beyond this road)	116,888.48
From express and extra baggage	7,500.00
mails	9,485.44
From other sources, passenger department	7,500.00
Total earnings from passenger department	183,195.17
From local freight (all freight starting from or stopping at any station on this road) *	29,220.16
From through freight (to and from other roads over and beyond this road)	383,415.43
Total earnings from freight department	412,635.59
Total transportation earnings	595,830.76
Income from all other sources, viz.:	32,241.69
Rents of land, buildings, shop-work, sales, etc. \$21,665.02	
Interest 10,576.67	
Total income from all sources	\$628,072.45

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$15,329.86
Legal expenses	309.15
Insurance	1,945.21
Stationery and printing	2,573.40
Outside agencies and advertising	3,367.96
Contingencies and miscellaneous	1,741.52
Repairs of bridges (including culverts and cattle-guards)	1,243.12
Repairs of buildings	8,219.41
Repairs of fences, road-crossings, and signs	1,254.81
Renewal of rails	5,910.90
[No. tons steel laid, 205.]	
Renewal of ties	6,767.26
[No. laid, 19,708.]	
Repairs of road-bed and track	31,088.87
Repairs of locomotives	33,663.68
Fuel for locomotives	82,547.85
[Tons of coal, 17,849; cords of wood, 1,281.]	
Water supply	558.44
Oil and waste	5,706.95
Locomotive service *	34,020.65
Repairs of passenger cars	10,940.62
Passenger-train service *	10,110.28
“ supplies	1,882.05
Mileage passenger cars †	2,333.58
Repairs of freight cars	17,689.36
Freight-train service *	26,299.74
“ supplies	1,594.87
Mileage freight cars †	22,595.63
Telegraph expenses	3,554.44
Loss and damage, freight and baggage	179.26
Personal injuries	174.00
Agents' and station service *	30,480.85
Station supplies	6,462.36
Total operating expenses	\$370,546.08
Taxes, state	22,195.14
local	892.41
Total operating expenses and taxes	\$393,633.63
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$2,395,268.94
Cost of equipment	322,266.32
Total permanent investments	\$2,717,535.26

* Salaries and wages.

† Debit balances.

Cash	\$60,433.63	
Notes receivable	222,734.06	
Due from agents and companies	106.26	
Materials and supplies	98,791.56	
Total cash assets		\$382,065.51
Total assets (as per books of the company)		\$3,099,600.77
LIABILITIES.		
Capital stock		\$2,153,300.00
Funded debt		800,000.00
Unfunded debt, viz.:		50,999.00
Interest unpaid, including bond coupons due Jan. 1, 1887	\$25,530.00	
Dividends unpaid	469.00	
Notes payable	25,000.00	
Profit and loss balance		95,301.77
Total liabilities (as per books of the company)		\$3,099,600.77
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		169,015
Freight-train mileage		404,805
Total revenue train mileage		573,820
Switching-train mileage		45,543
Other train mileage		11,907
Total train mileage		631,270
Number of season-ticket passengers *		4,506
Number of local passengers (including season)		83,291
Number of through passengers (to and from other roads going over and beyond this road)		89,921
Total number of passengers carried		173,212
Local passenger mileage (local passengers carried one mile)		1,451,336
Through passenger mileage (through passengers carried one mile)		3,688,181
Total passenger mileage		5,139,517
Number tons local freight		44,401
Number tons through freight (to and from other roads going over and beyond this road)		567,497
Total number tons freight carried		611,898
Local freight mileage (tons local freight carried one mile)		1,211,122
Through freight mileage (tons through freight carried one mile) †		32,119,140
Total freight mileage		33,330,262
Average number of persons employed		330

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

DESCRIPTION OF ROAD.	
Main line of road from Bellows Falls, Vt., to Ashburnham Junction, Mass.	53.62 miles.
Main line of road in New Hampshire	42.81 "
" " Massachusetts	10.81 "
Total road belonging to this company	53.62 "
Sidings and other tracks not above enumerated	17.01 "
Same in New Hampshire	13.84 "
Total length of track, computed as single track	70.63 "
Same in New Hampshire	56.65 "
Total length of steel rails in tracks, not including steel-top rails	53.62 "
[Weights per yard, 60 and 72 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Monadnock Railroad, length	15.82 miles.
Joint use with Fitchburg Railroad between Ashburnham Junction and Fitchburg	10.39 "
Total length of above roads	26.21 "
Total length of above roads in New Hampshire	13.75 "
" " Massachusetts	12.46 "
Total miles of road operated by this company	64.01 "
Total miles of road operated by this company in New Hampshire	42.81 "
Number of stations in New Hampshire on all roads operated by this company	14
Number of telegraph offices in same	10
Number of stations on all roads owned by this company	16
Same in New Hampshire	11

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives		30	30
" passenger cars		25	25
" parlor or sleeping cars			
" baggage, mail, and express cars		11	11
" freight cars (basis of 8 wheels)		453	453
" other cars		32	32

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers				1	.....	1	.....	1
Employés				1	.....	1	.....	1
Others			1	.....	1	.....	2	2

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

May 14, 1886. — Mrs. T. McCarty jumped from a moving passenger train at Keene, and died from her injuries.

May 27. — E. A. Fuller, employe, fell from a moving freight train at Marlborough, and lost one foot.

June 24. — E. W. Spaulding attempted to get on a moving passenger train at Keene; had an arm broken.

GENERAL INFORMATION.		
Maximum weight of locomotives in working order .	48	tons.
Average " " " "	34	"
Maximum weight of tenders full of fuel and water .	25	"
Average " " " "	19	"
Maximum weight of passenger cars	20	"
Average " " " " " "	18	"
" " mail and baggage cars	13½	"
" " 8-wheel box freight cars	9½	"
" " 8-wheel platform cars	7½	"
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46½	feet.
Total length of heaviest engine and tender over all	55	"
Number of locomotives equipped with train brake .	8	
[Kind of brake, Westinghouse.]		
Number of cars equipped with train brake	37	
[Kind of brake, Westinghouse.]		
Number of passenger cars with Miller platform and buffer	37	

Number of miles of road operated by this company not furnished with telegraph facilities:	15.82 miles.
From Peterborough, N. H., to Winchendon, Mass.	
Charges for the transportation of company's supplies included in earnings as reported for this road.	
Rate, $\frac{1}{2}$ cent per ton per mile; number of tons carried, 18,450; amount credited to earnings, \$3,675.50.	

BRIDGES.

Number of spans of stone bridges of 25 feet and upwards *	1
Aggregate length of same for single track 75 ft.	
Number of spans of iron bridges of 25 feet and upwards *	2
Aggregate length of same for single track 213 ft.	
Number of spans of timber bridges of 25 feet and upwards *	11
Aggregate length of same for single track 935 ft.	
Number of crossings of highways at grade *	33
“ “ “ over railroad	6
“ “ “ under railroad	5
Number of highway bridges 18 feet above track	8
Number of crossings at which gates or flagmen are maintained	2
Number of crossings at which there are neither signals nor flagmen *	31

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3.5 cents.
Average rate of fare per mile received from passengers to and from other roads	3.2 “
Average rate of fare per mile for season-ticket passengers ‡	1.5 “
Average rate of fare per mile received from all passengers	3.1 “
Average rate of local freight per ton per mile †	5.0 “
Average rate of freight per ton per mile received from freight to and from other roads	1.193 “
Average rate of freight per ton per mile received from all freight	1.238 “

* In New Hampshire, on miles of road owned.

† Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

CAPITAL STOCK.	
Total amount paid in (as per books of the company)	\$2,153,300.00
Total number of stockholders 452	
Number of stockholders in New Hampshire . . . 44	
Amount of stock held in New Hampshire \$387,300	
DEBT.	
Funded debt, as follows:	
Bonds due July 1, 1896; rate of interest, 6 per cent	\$250,000.00
Interest paid on same during year \$15,000.00	
Bonds due July 1, 1898; rate of interest, 6 per cent	550,000.00
Interest paid on same during year \$33,000.00	
Total amount of funded debt	\$800,000.00

NAMES AND RESIDENCES OF OFFICERS.

Wm. A. Russell, *President*, Lawrence, Mass.; Edward C. Thayer, *Vice-President*, Keene, N. H.; R. Stewart, *General Manager*, Keene, N. H.; J. W. Dodge, *General Freight Agent*, Keene, N. H.; F. H. Kingsbury, *General Ticket Agent and Treasurer*, Keene, N. H.; R. Stewart, *Clerk of Corporation*, Keene, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Wm. A. Russell, Geo. W. Russell, Lawrence, Mass.; R. M. Pulsifer, Newton, Mass.; H. W. Suter, Boston, Mass.; Edward C. Thayer, Keene, N. H.; A. B. Turner, Ashuelot, N. H.; Wm. H. Hill, Jr., Brookline, Mass.

PROPER ADDRESS OF THE COMPANY:

CHESHIRE RAILROAD COMPANY,

KEENE, N. H.

WM. A. RUSSELL,
EDWARD C. THAYER,
G. W. RUSSELL,
W. H. HILL, JR.,
Directors.
F. H. KINGSBURY,
Treasurer.
R. STEWART,
Superintendent.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. November 13, 1886. Then personally appeared Wm. A. Russell, Edward C. Thayer, G. W. Russell, W. H. Hill, Jr., F. H. Kingsbury, and R. Stewart, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

WILLIAM A. HAYES, 2D,
Justice of the Peace.

REPORT

OF THE

LESSEES OF THE MONADNOCK RAIL-ROAD

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$32,752.17
Total expense (including taxes)	23,768.13
Net income	8,984.04
Rentals	9,750.00
Balance for the year (deficit)	765.96
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$4,350.18
From through passengers (to and from other roads over and beyond this road)	6,120.50
From express and extra baggage	1,000.00
From mails	694.49
Total earnings from passenger department	12,165.17
From local freight (all freight starting from or stopping at any station on this road) *	9,544.65
From through freight (to and from other roads over and beyond this road)	9,046.05
From other sources, freight department	807.72
Total earnings from freight department	19,398.42
Total transportation earnings	31,563.59
Income from all other sources	1,188.58
Total income from all sources	32,752.17
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$1,200.00
Stationery and printing	300.00

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Repairs of bridges (including culverts and cattle-guards)	\$68.08
Repairs of buildings	332.58
Repairs of fences, road-crossings, and signs	249.50
Renewal of rails	686.15
[No. tons steel laid, 60.]	
Renewal of ties	2,641.93
[No. laid, 8,322.]	
Repairs of road-bed and track	5,419.84
Repairs of locomotives	883.42
Fuel for locomotives	3,322.53
[Tons of coal, 471; cords of wood, 399.]	
Oil and waste	245.57
Locomotive service *	1,642.40
Repairs of passenger cars	553.69
Passenger-train service *	718.28
" supplies	19.87
Repairs of freight cars	49.30
Freight-train service *	1,123.06
Mileage freight cars †	807.72
Telegraph expenses	70.50
Loss and damage, property and cattle	64.75
Agents' and station service *	1,949.97
Station supplies	10.00
Total operating expenses	22,359.14
Taxes, state	1,381.30
" local	27.69
Total operating expenses and taxes	23,768.13

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	18,154
Freight-train mileage	6,575
Total revenue train mileage	24,729
Total train mileage	24,729
Number of local passengers (including season)	12,795
Number of through passengers (to and from other roads going over and beyond this road)	11,687
Total number of passengers carried	24,482
Local passenger mileage (local passengers carried one mile)	121,662
Through passenger mileage (through passengers carried one mile)	141,258
Total passenger mileage	262,920
Number tons local freight	17,525
Number tons through freight (to and from other roads going over and beyond this road)	13,857
Total number tons freight carried	31,382
Local freight mileage (tons local freight carried one mile)	253,427

* Salaries and wages.

† Debit balances.

Through freight mileage (tons through freight carried one mile) *	205,947
Total freight mileage	459,374
Average number of persons employed	20

DESCRIPTION OF ROAD.

Main line of road from Winchendon, Mass., to Peterborough, N. H.	15.8 miles.
Main line of road in New Hampshire	13.762 "
" " Massachusetts	2.038 "
Total road belonging to this company	15.8 "
Number of stations on all roads owned by this company	4
Same in New Hampshire	3

BRIDGES.

Number of spans of timber bridges of 25 feet and upwards †	5
Number of crossings of highways at grade †	16

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	4.0 cents.
Average rate of fare per mile received from passengers to and from other roads	4.3 "
Average rate of fare per mile received from all passengers	4.0 "
Average rate of local freight per ton per mile ‡	1.0 "
Average rate of freight per ton per mile received from freight to and from other roads	4.392 "
Average rate of freight per ton per mile received from all freight	4.047 "

NAMES AND RESIDENCES OF OFFICERS.

Henry K. French, *President*, Peterborough, N. H.; Peter Upton, *Auditor*, East Jaffrey, N. H.; John H. Cutler, *Treasurer and Clerk of Corporation*, Peterborough, N. H.

* Carried to and from other roads.

† In New Hampshire, on miles of road owned.

‡ Rates as per tariff.

WM. A. RUSSELL,
EDWARD C. THAYER,
G. H. RUSSELL,
W. H. HILL, Jr.,

Directors.

F. H. KINGSBURY,
Treasurer.

R. STEWART,
Superintendent.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. November 13, 1886. Then personally appeared Wm. A. Russell, E. C. Thayer, G. W. Russell, Wm. H. Hill. Jr., F. H. Kingsbury, and R. Stewart, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

WILLIAM A. HAYES, 2d,
Justice of the Peace and Notary Public.

REPORT

OF THE

MONADNOCK RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$12,750.00
Total expense (including taxes)	62.00
Net income	12,688.00
Cheshire Railroad (estimated)	\$12,750.00
Interest accrued during year:	2,839.75
On funded debt	\$2,803.75
On other debt	36.00
Balance for the year (surplus)	9,848.25
Balance at commencement of year	\$106,111.08
Balance at commencement of year as so changed	106,111.08
Balance September 30, 1886 (surplus and gratuity)	115,959.33
ANALYSIS OF EARNINGS.	
Rents for use of road (estimated)	\$12,750.00
Total income from all sources	12,750.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$62.00
Total operating expenses and taxes	62.00
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$367,701.26
Stock of Monadnock R. R. Co. (54 shares)	3,090.00
Total permanent investments	\$370,791.26

Cash	\$320.07	
Due from agents and companies	2,250.00	
Total cash assets		\$2,570.07
Total assets (as per books of the company)		\$373,361.33
LIABILITIES.		
Capital stock		\$205,400.00
Funded debt		52,000.00
Unfunded debt, viz.:		2.00
Dividends unpaid	\$2.00	115,959.33
Total liabilities (as per books of the company)		\$373,361.33
DESCRIPTION OF ROAD.		
Main line of road from Peterborough, N. H., to Winchendon, Mass.	15.8	miles.
Main line of road in New Hampshire	13.762	"
" " Massachusetts	2.038	"
Total road belonging to this company	15.8	"
Sidings and other tracks not above enumerated . . . . .	.7	"
Total length of track, computed as single track	16.5	"
Same in New Hampshire	14.462	"
Number of stations in New Hampshire on all roads operated by this company	4	
Number of stations on all roads owned by this com- pany	5	
Same in New Hampshire	4	
GENERAL INFORMATION.		
Number of miles of road operated by this company not furnished with telegraph facilities. (Tele- phone entire length.):	15.8	miles.
From Peterborough, N. H., to Winchendon, Mass. A very small amount of charges for the transporta- tion of company's supplies included in the earn- ings as reported for this road.		
BRIDGES.		
Number of spans of timber bridges of 25 feet and upwards*	5	
Number of crossings of highways at grade*	16	
Number of crossings at which there are neither sig- nals nor flagmen*	16	
Number of railroad crossings at grade	16	

* In New Hampshire, on miles of road owned.

CAPITAL STOCK.

Capital stock authorized by charter	\$350,000.00	
“ authorized by votes of company	250,000.00	
Capital stock issued (number of shares, 2,054); amount paid in		\$205,400.00
Total amount paid in (as per books of the company)		205,400.00
Total number of stockholders	4	
Number of stockholders in New Hampshire	3	
Amount of stock held in N. Hampshire	\$103,000.00	

DEBT.

Funded debt, as follows:		
First mortgage bonds, due July 1, 1897; rate of interest, 5 per cent		\$52,000.00
Interest paid on same during year	\$2,803.75	
Total amount of funded debt		52,000.00

NAMES AND RESIDENCES OF OFFICERS.

Henry K. French, *President*, Peterborough, N. H.; Peter Upton, *Auditor*, East Jaffrey, N. H.; John H. Cutler, *Treasurer and Clerk of Corporation*, Peterborough, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Henry K. French, Peterborough, N. H.; Rodney Wallace, Fitchburg, Mass.; Edward C. Thayer, Keene, N. H.; J. H. Fairbanks, Winchendon, Mass.; Peter Upton, East Jaffrey, N. H.; O. H. Bradley, East Jaffrey, N. H.; Wm. G. Livingston, Peterborough, N. H.

PROPER ADDRESS OF THE COMPANY:

MONADNOCK RAILROAD COMPANY,

PETERBOROUGH, N. H.

HENRY K. FRENCH,

President.

JOHN H. CUTLER,

Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, SS. February 7, 1887. Then personally appeared Henry K. French and John H. Cutler, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

R B. HATCH,

Justice of the Peace.

REPORT

OF THE

CONCORD RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.

Total income	\$1,119,694.72
Total expense (including taxes)	845,523.04
Net income	274,171.68
Rentals	121,602.25
Concord & Portsmouth R. R.	25,000.00
Suncook Valley R. R.	14,700.00
Nashua, Acton & Boston R. R.	2,750.00
Manchester & Lawrence R. R., on account	52,102.94
Manchester & Keene R. R., improvements	27,049.31
Dividends declared (10 per cent)	150,000.00
Balance for the year (surplus)	2,569.43
Balance at commencement of year	\$210,457.24
Balance at commencement of year as so changed	210,457.24
Balance September 30, 1886 (surplus)	213,026.67

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *	\$298,899.74
From through passengers (to and from other roads over and beyond this road)	97,844.41
From express and extra baggage	16,937.51
mails	16,391.88
From other sources, passenger department	9,728.84
Total earnings from passenger department	439,802.38
From local freight (all freight starting from or stopping at any station on this road) *	415,370.69
From through freight (to and from other roads over and beyond this road)	253,850.89
Total earnings from freight department	669,221.58
Total transportation earnings	1,109,023.96

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz.:		\$10,670.76
Rents	\$8,954.26	
Interest	1,716.50	
Total income from all sources		\$1,119,694.72
ANALYSIS OF EXPENSES.		
Salaries of general officers and clerks		\$30,795.73
Legal expenses		3,449.48
Insurance		4,510.15
Stationery and printing		8,252.55
Outside agencies and advertising		842.39
Contingencies and miscellaneous		28,868.27
Repairs of bridges (including culverts and cattle-guards)		8,701.38
Repairs of buildings	\$28,755.24	
New buildings	69,451.18	
		98,206.42
Repairs of fences, road-crossings, and signs		3,143.24
Renewal of rails		33,473.59
[Number tons steel laid, 1,259.]		
[" " " relaid, 297.]		
[" " iron laid, 432.]		
Renewal of ties		29,189.74
[Number laid, 61,936.]		
Repairs of road-bed and track	\$74,508.45	
New tracks at Concord	14,020.04	
" " at Manchester	61,353.67	
		149,882.16
Repairs of locomotives	\$22,724.38	
New locomotives	13,400.90	
		36,125.28
Fuel for locomotives		69,811.34
[Tons of coal, 14,111; cords of wood, 6,330.]		
Water supply		4,638.49
Oil and waste		9,830.28
Locomotive service *		54,923.12
Repairs of passenger cars	\$18,454.62	
New passenger cars	5,031.66	
		23,486.28
Passenger-train service *		17,940.71
" supplies		2,037.07
Repairs of freight cars	\$22,893.47	
New freight cars	20,284.44	
		43,177.91
Freight-train service *		30,448.53
" supplies		453.90
Mileage freight cars †		24,785.33

* Salaries and wages.

† Debit balances.

Telegraph expenses	\$1,423.82
Loss and damage, freight and baggage	617.90
“ “ property and cattle	789.70
Personal injuries	2,327.33
Agents' and station service *	79,202.82
Station supplies	7,039.59
Total operating expenses	\$808,374.50
Taxes, state	35,951.07
“ local	1,197.47
Total operating expenses and taxes	\$845,523.04

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of road }	\$1,500,000.00	
Cost of equipment }		
Rindge's wharf	51,507.72	
Nashua, Acton & Boston R. R.	30,000.00	
Manchester & Keene R. R.	160,518.40	
Suncook Valley R. R.	55,492.80	
Mt. Washington R. R.	173.61	
Total permanent investments		\$1,797,692.53
Cash	\$86,665.39	
Bills receivable	8,500.00	
Materials and supplies	158,774.62	
Debit balances	545.00	
Total cash assets		254,485.01
Total assets (as per books of the company)		\$2,052,177.54

LIABILITIES.

Capital stock	\$1,500,000.00
Unfunded debt, viz.:	339,150.87
Dividends unpaid	\$79,630.00
Vouchers and accounts	259,520.87
Profit and loss balance	213,026.67
Total liabilities (as per books of the company)	\$2,052,177.54

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	295,341
Freight-train mileage	275,327
Total revenue train mileage	570,668

* Salaries and wages.

Switching-train mileage	245,186
Other train mileage	57,058
Total train mileage	872,912
Number of season-ticket passengers *	31,272
Number of local passengers (including season)	523,297
Number of through passengers (to and from other roads going over and beyond this road)	167,748
Total number of passengers carried	691,045
Local passenger mileage (local passengers carried one mile)	10,918,122
Through passenger mileage (through passengers carried one mile)	5,691,823
Total passenger mileage	16,609,945
Number tons local freight	495,618
Number tons through freight (to and from other roads going over and beyond this road)	742,961
Total number tons freight carried	1,238,579
Local freight mileage (tons local freight carried one mile)	13,301,555
Through freight mileage (tons through freight carried one mile) †	25,202,555
Total freight mileage	38,504,110
Average number of persons employed	800

DESCRIPTION OF ROAD.

Main line of road from Concord to Nashua	34.53 miles.
Main line of road in New Hampshire	34.53 "
Double track on main line	34.53 "
Same in New Hampshire	34.53 "
Branch owned by the company, viz. : Suncook to Hooksett, about	2.5 "
Total length of branch owned by company in New Hampshire	2.5 "
Total road belonging to this company	37.03 "
Sidings and other tracks not above enumerated	37.54 "
Same in New Hampshire	37.54 "
Total length of track, computed as single track	109.1 "
Same in New Hampshire	109.1 "
Total length of steel rails in tracks, not including steel-top rails	71.12 "
[Weights per yard, 56 to 72 lbs.]	

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Concord & Portsmouth R. R., length	47.5 miles.
Suncook Valley R. R., length	17.37 "

*Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

Manchester & North Weare R. R., length . . .	19.0 miles.
Nashua, Acton & Boston, R. R., length . . .	20.21 "
Total length of above roads	104.08 "
" " " in New Hampshire . . .	89.62 "
" " " in Massachusetts :	
Nashua, Acton & Boston R. R.	14.46 "
Total miles of road operated by this company . .	141.11 "
Total miles of road operated by this company in New Hampshire	125.65 "
Number of stations in New Hampshire on all roads operated by this company	41
Number of telegraph offices in same	13
Number of stations on all roads owned by this company	12
Same in New Hampshire	12

EQUIPMENT.

Number of locomotives	43
" passenger cars	48
" pay cars	1
" baggage, mail, and express cars	13
" freight cars (basis of 8 wheels) . . .	1,115
" other cars :	
Milk	4
Combination	4
Fuel and construction	6
Crane	2
Wrecking	1
Gouger	3

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....	1	.....	1	.....	1	.....
Employés	1	.....	1	.....	1	.....
Others.....	2	.....	2	.....	2	.....

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

December 23, 1885.—A man named Henry Buzzell was found dead beside the track near Auburn. He was probably struck by a night freight train.

December 29.—Bridget Hoban jumped from passenger train in Manchester depot, and was fatally injured.

May 4, 1886.—Albert A. Huntress, a freight brakeman, fell between the cars near Newmarket Junction, and was fatally injured.

September 10.—An unknown man, while walking on track below Manchester station, was struck by passenger train and instantly killed.

GENERAL INFORMATION.		
Maximum weight of locomotives in working order .	98,200	lbs.
Average " " " " .	63,093	"
Maximum weight of tenders full of fuel and water	64,400	"
Average " " " " .	41,642	"
Maximum weight of passenger cars . . .	47,300	"
Average " " " " . . .	34,638	"
" " of mail and baggage cars . . .	31,081	"
" " of 8-wheel box freight cars . . .	20,266	"
" " of 8-wheel platform cars . . .	17,550	"
" " of 4-wheel " " . . .	6,663	"
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46	ft.
Total length of heaviest engine and tender over all	55	" 7 in.
Number of locomotives equipped with Judkins's railway train signal	17	
Number of locomotives equipped with train brake .	21	
[Kind of brake, Westinghouse.]		
Number of cars equipped with train brake . . .	57	
[Kind of brake, Westinghouse.]		
Number of passenger cars with Miller platform and buffer	69	
Number of cars equipped with Judkins's railway train signal	49	
Number of miles of road operated by this company not furnished with telegraph facilities:		
From Suncook to Pittsfield	17.37	
From Manchester to North Weare	19.0	
Charges for the transportation of company's supplies coming from other roads included in the earnings as reported for this road.		
Rate, $1\frac{1}{2}$ cent per ton per mile. No separate account kept of tonnage and earnings on same.		

BRIDGES.

Number of spans of iron bridges of 25 feet and upwards *	1
Aggregate length of same for triple track 115 ft.	
Number of spans of timber bridges of 25 feet and upwards *	8
Aggregate length of same for double track 1,466 ft.	
Number of crossings of highways at grade *	19
“ “ “ over railroad .	5
“ “ “ under “ .	2
“ of highway bridges 18 feet above track .	1
“ of highway bridges less than 18 feet above track .	4
Number of crossings at which gates or flagmen are maintained .	6
Number of crossings at which there are neither signals nor flagmen *	13

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	2.8 cents.
Average rate of fare per mile received from passengers to and from other roads	1.72 “
Average rate of fare per mile for season-ticket passengers ‡ . . . . .	.5 “
Average rate of fare per mile received from all passengers	2.38 “
Average rate of local freight per ton per mile †	3.12 “
Average rate of freight per ton per mile received from freight to and from other roads	1.0 “
Average rate of freight per ton per mile received from all freight	1.74 “

CAPITAL STOCK.

Capital stock authorized by charter .	\$500,000.00
Capital stock authorized by votes of company	1,000,000.00
Capital stock issued (number of shares, 30,000); amount paid in	\$1,500,000.00
Total amount paid in (as per books of the company)	1,500,000.00
Total number of stockholders	1,279
Number of stockholders in New Hampshire	818
Amount of stock held in New Hampshire	\$1,124,500.00

* On miles of road owned in New Hampshire.

† Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

NAMES AND RESIDENCES OF OFFICERS.

Frederick Smyth, *President*, Manchester, N. H. ; Horace E. Chamberlin, *Superintendent*, Concord, N. H. ; Samuel Barrett, *General Freight Agent*, Concord, N. H. ; Frank E. Brown, *General Passenger Agent*, Concord, N. H. ; J. Frank Webster, *Cashier*, Concord, N. H. ; Nathan Parker, *Treasurer*, Manchester, N. H. ; William M. Chase, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Frederick Smyth, Manchester, N. H. ; Josiah Minot, John H. Pearson, Concord, N. H. ; James W. Johnson, Enfield, N. H. ; Benjamin A. Kimball, John A. White, Concord, N. H. ; Walter M. Parker, Manchester, N. H.

PROPER ADDRESS OF THE COMPANY :

CONCORD RAILROAD CORPORATION,
CONCORD, N. H.

FREDERICK SMYTH,
President.

NATHAN PARKER,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH and MERRIMACK, ss. December 28, 1886. Then personally appeared Frederick Smyth, Nathan Parker, and H. E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER,
Justice of the Peace.

REPORT

OF THE

CONCORD & PORTSMOUTH RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$25,000.00
Total expense (including taxes)	355.25
Net income from rentals	24,644.75
Dividends declared (7 per cent)	24,500.00
Balance for the year (surplus)	144.75
Balance at commencement of year	\$1,839.60
Balance at commencement of year as so changed	1,839.60
Balance September 30, 1886 (surplus)	1,984.35
ANALYSIS OF EARNINGS.	
Rents for use of road	\$25,000.00
Total income from all sources	\$25,000.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$350.75
Outside agencies and advertising	4.50
Total operating expenses and taxes	\$355.25
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Included in Concord Railroad report.	
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$350,000.00

Total permanent investments	\$350,000.00
Cash	1,984.35
Total assets (as per books of the company) .	\$351,984.35
LIABILITIES.	
Capital stock	\$350,000.00
Profit and loss balance	1,984.35
Total liabilities (as per books of the company)	\$351,984.35
MILEAGE, TRAFFIC, ETC.	
Included in Concord Railroad report.	
DESCRIPTION OF ROAD.	
Main line of road from Manchester to Portsmouth .	40.5 miles.
“ “ in New Hampshire	40.5 “
Branch owned by this company, viz. :	
Concord to Suncook (single track)	7.0 “
Total length of branch owned by company in New Hampshire	7.0 “
Total road belonging to this company	47.5 “
Sidings and other tracks not above enumerated .	8.58 “
Same in New Hampshire	8.58 “
Total length of track, computed as single track .	56.08 “
Same in New Hampshire	56.08 “
Total length of steel rails in tracks, not including steel-top rails	27.8 “
[Weights per yard, 56 to 72 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Total miles of road operated by this company .	40.5 miles.
Total miles of road operated by this company in New Hampshire	40.5 “
Number of stations in New Hampshire on all roads operated by this company	15
Number of telegraph offices in same	5
Number of stations on all roads owned by this company	15
Same in New Hampshire	15
LIST OF ACCIDENTS.	
Included in Concord Railroad report.	

GENERAL INFORMATION.

Included in Concord Railroad report.

BRIDGES.

Number of spans of timber bridges of 25 feet and upwards *	6
Aggregate length of same for single track 291 ft.	
Number of crossings of highways at grade *	56
“ “ over railroad	4
Number of highway bridges 18 feet above track	2
Number of highway bridges less than 18 feet above track	2
Number of crossings at which gates or flagmen are maintained	1
Number of crossings at which there are neither signals nor flagmen *	56
Number of railroad crossings at grade : *	3
Eastern R. R. at Portsmouth.	
Worcester, Nashua & Rochester R. R. at Epping.	
Boston & Maine R. R. at Newmarket Junction.	

RATES OF FARE, ETC.

Included in Concord Railroad report.

CAPITAL STOCK.

Capital stock authorized by charter	\$500,000.00
Capital stock issued (number of shares, 3,500) ; amount paid in	\$350,000.00
Total amount paid in (as per books of the company)	350,000.00
Total number of stockholders	231
Number of stockholders in New Hampshire	201
Amount of stock held in New Hampshire	\$321,300.00

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H. ; Horace E. Chamberlin, *Superintendent*, Concord, N. H. ; Samuel Barrett, *General Freight Agent*, Concord, N. H. ; Frank E. Brown, *General Passenger Agent*, Concord, N. H. ; Edward H. Paine, *Treasurer*, Manchester, N. H. ; William H. Hackett, *Clerk of Corporation*, Portsmouth, N. H.

* In New Hampshire, on miles of road owned.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Walter M. Parker, Moody Currier, Manchester, N. H. ; Joseph B. Walker, Concord, N. H. ; John J. Bell, Exeter, N. H. ; Wm. A. Pierce and John J. Pickering, Portsmouth, N. H.

PROPER ADDRESS OF THE COMPANY :

CONCORD & PORTSMOUTH RAILROAD,
CONCORD, N. H.

S. N. BELL,
President.

E. H. PAINE,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH and MERRIMACK, ss. December 28, 1886. Then personally appeared Samuel N. Bell, E. H. Paine, and H. E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER, *Justice of the Peace.*

REPORT

OF THE

MANCHESTER & LAWRENCE RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$175,262.33
Total expense (including taxes)	60,301.30
Net income	114,961.03
Rentals:	
Methuen Branch	11,000.00
Dividends declared (10 per cent)	100,000.00
Balance for the year	3,961.03
Balance at commencement of year	\$164,074.58
Balance at commencement of year as so changed	164,074.58
Balance September 30, 1886	168,035.61
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$62,421.33
From through passengers (to and from other roads over and beyond this road)	3,452.37
From express and train baggage	8,164.92
From mails	2,064.48
From other sources, passenger department	4,181.92
Total earnings from passenger department	80,285.02
From local freight (all freight starting from or stopping at any station on this road)*	38,335.92
From through freight (to and from other roads over and beyond this road)	964.05
Total earnings from freight department	39,299.97
Total transportation earnings	119,584.99

*Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz.:		\$55,677.34
Rents	\$182.00	
Concord Railroad, on account	52,102.94	
Interest earnings as per treasurer's accounts	3,392.40	
Total income from all sources		\$175,262.33

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$2,858.40
Legal expenses	649.71
Stationery and printing	455.56
Outside agencies and advertising	69.54
Contingencies and miscellaneous	61.55
Repairs of bridges (including culverts and cattle-guards)	959.17
Repairs of buildings	770.84
Repairs of fences, road-crossings, and signs	659.90
Renewal of rails	3,747.11
[Number tons steel laid, 144; number tons steel relaid, 6; number tons iron laid, 45.]	
Renewal of ties	2,248.68
[Number laid 5,458.]	
Repairs of road-bed and track	8,163.58
Fuel for locomotives	9,119.81
[Tons of coal, 1,247; cords of wood, 797.]	
Water supply	50.00
Locomotive service *	3,191.39
Passenger-train service *	2,971.33
Freight-train service *	1,587.73
Telegraph expenses	351.25
Loss and damage, freight and baggage . . . . .	.25
“ “ property and cattle	346.37
Agents' and station service *	4,661.60
Station supplies	139.43
Total operating expenses	\$43,063.20
Taxes, state	17,005.71
“ local	232.39
Total operating expenses and taxes	\$60,301.30

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of equipment	\$1,000,000.00
Telegraph	4,770.35

* Salaries and wages.

Hooksett Branch	\$18,000.00	
Stock of Suncook Valley R. R.	4,770.35	
“ Mt. Washington R. R.	3,700.00	
Total permanent investments		\$1,068,510.35
Cash	\$74,799.76	
Materials and supplies, C. M. & L. road accounts	32,000.00	
Total cash assets		106,799.76
Total assets (as per books of the company)		\$1,175,310.11
LIABILITIES.		
Capital stock		\$1,000,000.00
Unfunded debt, viz.:		7,274.50
Dividends unpaid	\$7,274.50	
Profit and loss balance		168,035.61
Total liabilities (as per books of the company)		\$1,175,310.11
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		54,210
Freight-train mileage		19,981
Total revenue train mileage		74,191
Total train mileage		74,191
Number of season-ticket passengers *	24,244	
Number of local passengers (including season)		173,627
Number of through passengers (to and from other roads going over and beyond this road)		7,163
Total number of passengers carried		180,790
Local passenger mileage (local passengers carried one mile)		2,193,665
Through passenger mileage (through passengers carried one mile)		181,936
Total passenger mileage		2,375,601
Number tons local freight		63,315
Number tons through freight (to and from other roads going over and beyond this road)		9,464
Total number tons freight carried		72,779
Local freight mileage (tons local freight carried one mile)		1,069,868
Through freight mileage (tons through freight car- ried one mile)†		246,063
Total freight mileage		1,315,931
Average number of persons employed		46

* Reckoning twelve passengers per week for time of each season ticket.

† Carried to and from other roads.

DESCRIPTION OF ROAD.	
Main line of road from Manchester to Massachusetts state line	22.39 miles.
Main line of road in New Hampshire	22.39 "
Total road belonging to this company	22.39 "
Sidings and other tracks not above enumerated	3.38 "
Same in New Hampshire	2.52 "
Total length of track, computed as single track	25.77 "
Same in New Hampshire	24.91 "
Total length of steel rails in tracks, not including steel-top rails	17.4 "
[Weights per yard, 56 to 72 lbs.]	
<i>Roads and Branches belonging to other Companies operated by this Company under lease or contract.</i>	
Methuen Branch, length	3.75 miles.
Total length of above road in Massachusetts	3.75 "
Total miles of road operated by this company	26.14 "
Total miles of road operated by this company in New Hampshire	22.39 "
Number of stations in New Hampshire on all roads operated by this company	7
Number of telegraph offices in same	4
Number of stations on all roads owned by this company	7
Same in New Hampshire	7
GENERAL INFORMATION.	
Charges for the transportation of company's supplies (only on freight coming from other roads) included in the earnings as reported for this road.	
Rate, 1½ cents per ton per mile. No separate account kept of tonnage and earnings on same.	
BRIDGES.	
Number of spans of stone bridges of 25 feet and upwards*	1
Aggregate length of same for single track	80 ft.
Number of spans of timber bridges of 25 feet and upwards*	2
Aggregate length of same for single track	210 ft.
Number of crossings of highways at grade*	22
" " " over railroad	7
" " " under "	1
Number of highway bridges 18 feet above track	1

* In New Hampshire, on miles of road owned.

Number of highway bridges less than 18 feet above track	6
Number of crossings at which there are neither signals nor flagmen *	1
Number of railroad crossings at grade : *	1
Worcester, Nashua & Rochester R. R.	

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	3.04 cents.
Average rate of fare per mile received from passengers to and from other roads	1.90 “
Average rate of fare per mile for season-ticket passengers ‡	1.35 “
Average rate of fare per mile received from all passengers	2.77 “
Average rate of local freight per ton per mile †	3.58 “
Average rate of freight per ton per mile received from freight to and from other roads . . . . .	.39 “
Average rate of freight per ton per mile received from all freight	2.98 “

CAPITAL STOCK.

Capital stock issued (number of shares, 10,000) ; amount paid in	\$1,000,000.00
Total amount paid in (as per books of the company)	1,000,000.00
Total number of stockholders	675
Number of stockholders in New Hampshire	416
Amount of stock held in “ “	\$626,300.00

NAMES AND RESIDENCES OF OFFICERS.

Nathan Parker, *President*, Manchester, N. H. ; Horace E. Chamberlin, *Auditor*, Concord, N. H. ; Joseph W. Hildreth, *Assistant Superintendent*, Manchester, N. H. ; Samuel Barrett, *General Freight Agent*, Frank E. Brown, *General Passenger Agent*, J. Frank Webster, *Cashier*, Concord, N. H. ; George B. Chandler, *Treasurer*, Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

* On miles of road owned in New Hampshire.

† Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Nathan Parker, Manchester, N. H. ; Joseph W. Smith, Andover, Mass. ; John A. White, William P. Fowler, Concord, N. H. ; Edward A. Abbot, William A. Tower, Boston, Mass.

PROPER ADDRESS OF THE COMPANY :

MANCHESTER & LAWRENCE RAILROAD,
MANCHESTER, N. H.

NATHAN PARKER,
President.

GEORGE B. CHANDLER,
Treasurer.

J. W. HILDRETH,
Assistant Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. December 28, 1886. Then personally appeared Nathan Parker, George B. Chandler, and Joseph W. Hildreth, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER,
Justice of the Peace.

REPORT

OF THE

MANCHESTER & NORTH WEARE RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$34,488.81
Total expense (including taxes)	28,491.92
Net income	5,996.89
Balance at commencement of year	\$3,450.72
Balance at commencement of year as so changed	3,450.72
Balance September 30, 1886 (surplus)	9,447.61
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$13,613.07
From express and extra baggage	1,249.93
From other sources, passenger department	1,426.16
Total earnings from passenger department	16,289.16
From local freight (all freight starting from or stopping at any station on this road) *	18,199.65
Total earnings from freight department	18,199.65
Total transportation earnings	34,488.81
Total income from all sources	\$34,488.81
ANALYSIS OF EXPENSES.	
Outside agencies and advertising	\$4.50
Repairs of bridges (including culverts and cattle-guards)	2,025.71
Repairs of buildings	1,079.81
Repairs of fences, road-crossings, and signs	175.42

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Renewal of rails	\$1,583.04
[Number tons steel laid, 40.]	
[Number tons iron laid, 181.]	
Renewal of ties	3,096.46
[Number laid, 7,005.]	
Repairs of road-bed and track	7,275.54
Fuel for locomotives	3,270.23
[Cords of wood, 1,022.]	
Water supply	5.00
Locomotive service *	1,348.75
Passenger-train service *	1,048.08
Mileage passenger cars †	1,540.61
Freight-train service *	1,003.10
Mileage freight cars †	1,316.27
Loss and damage, property and cattle	48.47
Agents' and station service *	2,640.45
Station supplies	87.60
Total operating expenses	\$27,549.04
Taxes, state	942.88
Total operating expenses and taxes.	\$28,491.92

MILEAGE, TRAFFIC, ETC.

(Train mileage included in Concord R. R. report.)

Total number of passengers carried	39,289
Local passenger mileage (local passengers carried one mile)	401,191
Total passenger mileage	401,191
Number tons local freight	18,263
Total number tons freight carried	18,263
Local freight mileage (tons local freight carried one mile)	211,973
Total freight mileage	211,973
Average number of persons employed	23

DESCRIPTION OF ROAD.

Main line of road from Manchester to North Weare	19.0 miles.
Main line of road in New Hampshire	19.0 "
Total road belonging to this company	19.0 "
Sidings and other tracks not above enumerated	1.63 "
Same in New Hampshire	1.63 "
Total length of track, computed as single track	20.63 "
Same in New Hampshire	20.63 "
Total length of steel rails in tracks, not including steel-top rails	27

* Salaries and wages.

† Debit balances.

[Weight per yard, 72 lbs.]	
Total miles of road operated by this company . . .	19.0 miles.
Total miles of road operated by this company in New Hampshire	19.0 "
Number of stations in New Hampshire on all roads operated by this company	9
Number of stations on all roads owned by this com- pany	9
Same in New Hampshire	9
GENERAL INFORMATION.	
Number of miles of road operated by this company not furnished with telegraph facilities: . . .	19
From Manchester to North Weare.	
BRIDGES.	
Number of spans of timber bridges of 25 feet and upwards*	13
Aggregate length of same for single track, 1,273 ft.	
Number of crossings of highways at grade* . . .	20
“ “ under railroad	1
Number of crossings at which there are neither sig- nals nor flagmen*	20
RATES OF FARE, ETC.	
Included in Concord Railroad report.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$200,000.00

NAMES AND RESIDENCES OF OFFICERS.

Jesse Gault, *President*, Hooksett, N. H.; Horace E. Chamberlin, *Superintendent*, Concord, N. H.; Josiah Carpenter, *Treasurer*, Manchester, N. H.; Nathan P. Hunt, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Jesse Gault, Hooksett, N. H.; Benjamin A. Kimball, Concord, N. H.; Charles Chase, Manchester, N. H.; Eliphalet S. Nutter, Concord, N. H.; William J. Hoyt, Manchester, N. H.; Horace P. Watts, Manchester, N. H.; Edward C. Shirley, Goffstown, N. H.

* In New Hampshire, on miles of road owned.

PROPER ADDRESS OF THE COMPANY :
MANCHESTER & NORTH WEARE RAILROAD,
MANCHESTER, N. H.

JOSIAH CARPENTER,
Treasurer.

H. E. CHAMBERLIN,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK and HILLSBOROUGH, SS. December 28, 1886. Then personally appeared Josiah Carpenter and Horace E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER,
Justice of the Peace.

REPORT

OF THE

NASHUA, ACTON & BOSTON RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$5,500.00
Net income	5,500.00
Interest accrued during year:	30,225.51
On funded debt \$30,000.00	
On other debt 225.51	
Balance for the year (deficit)	24,725.51
Balance at commencement of year \$374,468.78	
Balance at commencement of year as so changed	374,468.78
Balance September 30, 1886 (deficit)	399,194.29
ANALYSIS OF EARNINGS.	
Rents for use of road	\$5,500.00
Total income from all sources	5,500.00
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road \$1,057,031.20	
Total permanent investments	\$1,057,031.20
Debit balances from Concord Railroad	
to January 1, 1886 \$6,257.41	
Total cash assets	6,257.41
Profit and loss balance (deficit)	399,194.29
Total assets (as per books of the company)	\$1,462,482.90
LIABILITIES.	
Capital stock	\$500,000.00
Funded debt	500,000.00

Unfunded debt, viz.:		\$462,482.90
Interest unpaid	\$356,973.00	
Notes payable	105,509.90	
Total liabilities (as per books of the company)		\$1,462,482.90
CAPITAL STOCK.		
Capital stock authorized by charter	\$600,000.00	
Capital stock authorized by votes of company	500,000.00	
Capital stock issued (number of shares, 4,981); amount paid in		\$498,100.00
Capital stock paid in on shares not issued (number shares, 19)		1,900.00
Total amount paid in (as per books of the company)		500,000.00
Total number of stockholders	188	
Number of stockholders in New Hampshire	104	
DEBT.		
Funded debt, as follows:		
First mortgage bonds due 1896; rate of interest, 6 per cent		\$500,000.00
Total amount of funded debt		500,000.00

NAMES AND RESIDENCES OF OFFICERS.

John C. Moulton, *President*, Laconia, N. H.; F. D. Cook, *Treasurer*, Nashua, N. H.; John B. Goodrich, *Clerk of Corporation*, Boston, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

John C. Moulton, Laconia, N. H.; E. P. Brown, E. H. Spalding, Nashua, N. H.; W. H. Spalding, Lawrence, Mass.; James W. Johnson, Boston, Mass.; Walter Parker, Chas. Williams, and Frederick Smyth, Manchester, N. H.; J. H. Pearson, Concord, N. H.

PROPER ADDRESS OF THE COMPANY:

NASHUA, ACTON & BOSTON RAILROAD COMPANY,

NASHUA, N. H.

F. D. COOK,

Treasurer.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. November 23, 1886. Then personally appeared F. D. Cook, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

G. F. HAMMOND, *Justice of the Peace.*

REPORT

OF THE

SUNCOOK VALLEY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$14,700.00
Total expense (including taxes)	288.12
Net income	14,411.88
Dividends declared (6 per cent on \$240,000)	14,400.00
Balance for the year (surplus)	11.88
Balance at commencement of year \$118.80	
Balance at commencement of year as so changed	118.80
Balance September 30, 1886 (surplus)	130.68
ANALYSIS OF EARNINGS.	
Total income from all sources	\$14,700.00
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$275.00
Contingencies and miscellaneous	13.12
Total operating expenses and taxes	\$288.12
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road	\$348,199.19
Total permanent investments	\$348,199.19
Cash	2,327.49
Total cash assets	2,327.49
Total assets (as per books of the company)	\$350,526.68

LIABILITIES.	
Capital stock	\$341,700.00
Unfunded debt, viz.:	
Aid or contribution	8,696.00
Profit and loss balance	130.68
Total liabilities (as per books of the company)	\$350,526.68
(Mileage, traffic, etc., included in Concord Railroad report.)	
DESCRIPTION OF ROAD.	
Main line of road from Hooksett to Pittsfield . .	19.54 miles.
" " in New Hampshire	19.54 "
Track laid	17.37 "
Total road belonging to this company	17.37 "
Sidings and other tracks not above enumerated . .	1.8 "
Same in New Hampshire	1.8 "
Total length of track, computed as single track . .	19.17 "
Same in New Hampshire	19.17 "
Total length of steel rails in tracks, not including steel-top rails . . . . .	.27 "
[Weight per yard, 67 lbs.]	
Total miles of road operated by this company . .	17.37 "
Total miles of road operated by this company in New Hampshire	17.37 "
Number of stations in New Hampshire on all roads operated by this company	7
Number of stations on all roads owned by this company	7
Same in New Hampshire	7
(List of accidents and general information included in Concord Railroad report.)	
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards *	1
Aggregate length of same for single track 154 ft.	
Number of spans of timber bridges of 25 feet and upwards *	3
Aggregate length of same for single track 127½ ft.	
Number of crossings of highways at grade *	15
" " " over railroad	1

* In New Hampshire, on miles of road owned.

Number of highway bridges less than 18 feet above track	1
Number of crossings at which there are neither signals nor flagmen *	15
(Rates of fare, etc., included in Concord Railroad report.)	
CAPITAL STOCK.	
Capital stock authorized by charter	\$500,000.00
Capital stock issued (number of shares, 2,400); amount paid in	\$240,000.00
Capital stock paid in on shares, no dividend	1,017
Total number of stockholders	135
Number of stockholders in New Hampshire	132
Amount of stock held in New Hampshire	\$233,500.00
Amount of stock held in New Hampshire, no dividend	101,700.00

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H.; Horace E. Chamberlin, *Superintendent*, Concord, N. H.; James A. Weston, *Treasurer*, Manchester, N. H.; Bradbury P. Cilley, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Martin V. B. Edgerly, Frederick Smyth, Manchester, N. H.; William F. Head, Hooksett, N. H.; Reuben L. French, Hiram A. Tuttle, Pittsfield, N. H.; Charles H. Carpenter, Chichester, N. H.

PROPER ADDRESS OF THE COMPANY:

SUNCOOK VALLEY RAILROAD,
MANCHESTER, N. H.

S. N. BELL,

President.

JAMES A. WESTON,

Treasurer.

H. E. CHAMBERLIN,

Superintendent.

*On miles of road owned in New Hampshire.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH and MERRIMACK, ss. December 28, 1886. Then personally appeared Samuel N. Bell, James A. Weston, and Horace E. Chamberlin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JOHN F. WEBSTER,
Justice of the Peace.

REPORT

OF THE

FITCHBURG RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$3,399,542.48
Total expense (including taxes)		2,559,664.99
Net income		839,877.49
Rentals:		256,480.00
Vermont & Massachusetts R. R.	\$244,580.00	
Troy & Greenfield & Hoosac Tunnel R. R.	2,600.00	
Worcester, Nashua & Rochester R. R.	600.00	
Viaduct Company	3,000.00	
Boston & Albany R. R.	5,100.00	
Cheshire R. R.	600.00	
Interest accrued during the year:		260,763.00
On funded debt	\$260,763.00	
Dividends declared (5 per cent)		264,330.00
Balance for the year (surplus)		58,304.49
Balance at commencement of year	\$390,041.61	
Deduct:		
Interest accrued prior to October 1, 1885, interest prior to this year having been charged only as it matured	\$10,580.08	
Rent of roads accrued prior to October 1, 1885, rent previous to that time having been charged only as it matured	6,689.37	
Worthless accounts charged off	20,743.93	
	\$38,013.38	
Balance at commencement of year as so changed		352,028.23
Balance September 30, 1886		410,332.72

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *	\$803,369.04
From through passengers (to and from other roads over and beyond this road)	268,920.38
From express and extra baggage	81,143.94
From mails	30,528.19
Total earnings from passenger department	1,183,961.55
From local freight (all freight starting from or stopping at any station on this road) *	741,854.85
From through freight (to and from other roads over and beyond this road)	1,336,590.71
Total earnings from freight department	2,078,445.56
Total transportation earnings	3,262,407.11
Rents for use of road	51,000.00
Income from all other sources, viz.:	86,135.37
Rent of property \$27,409.32	
Discharging coal 5,472.67	
Other sources 53,253.38	
Total income from all sources	\$3,399,542.48

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$94,169.31
Legal expenses	11,058.77
Insurance	7,369.72
Stationery and printing	38,393.63
Outside agencies and advertising	57,970.21
Contingencies and miscellaneous	38,225.34
Repairs of bridges (including culverts and cattle-guards)	40,553.03
Repairs of buildings	55,462.58
Repairs of fences, road-crossings, and signs	10,151.53
Renewal of rails	45,060.14
[Number tons steel laid, 3,322.]	
Renewal of ties	59,170.41
[Number laid, 138,902.]	
Repairs of road-bed and track	209,921.91
Repairs of locomotives, including 5 new engines	159,501.28
Fuel for locomotives	298,619.08
[Tons of coal, 79,837; cords of wood, 778.]	
Water supply	12,329.90
Oil and waste	12,362.53
Locomotive service †	237,322.22
Repairs of passenger cars	70,057.25
Passenger-train service †	90,984.21
" supplies	13,719.73
Mileage passenger cars ‡	12,534.11

* Including passengers and freight to and from other roads starting from or stopping at stations on this road. † Salaries and wages. ‡ Debit balances.

Repairs of freight cars	\$169,404.13
Freight-train service *	193,959.02
" supplies	11,225.13
Mileage freight cars †	43,123.95
Telegraph expenses	31,827.03
Loss and damage, freight and baggage	4,046.30
" " property and cattle	3,190.05
Personal injuries	22,773.63
Agents' and station service *	330,518.45
Station supplies	23,960.07
Total operating expenses	\$2,408,964.65
Taxes, state }	150,700.34
" local }	
Total operating expenses and taxes	\$2,559,664.99

PROPERTY ACCOUNTS: CHARGES AND CREDITS
DURING THE YEAR.

Construction not apportioned:

New sidings and RiverView Bridge	\$17,862.92
New signals	19,457.65
Walden improvements	6,007.91
New station buildings and coal-sheds	19,252.14

Total for construction	\$62,580.62
Passenger, mail, and baggage cars (5)	21,724.73
Total for equipment	21,724.73
Other expenditures charged to property account:	267,309.61
Land	\$159,512.35
Stock of Hoosac Tunnel Dock & Elevator Co.	41,100.00
Worcester Division improvements	49,207.49
Roberts extension and "	15,235.30
Other improvements	2,254.47
Total charges to property accounts	351,614.96
Net addition to property account for the year	351,614.96

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of road	\$5,673,540.03
Cost of equipment	2,680,913.87
Lands in Boston, Worcester, and on line of road	447,239.07
Stock of Hoosac Tunnel Dock & Elevator Co.	452,500.00
Prison land improvements	14,351.38
Somerville improvements	355,251.30

* Salaries and wages.

† Debit balances.

Permanent improvements, Worcester Division	\$67,578.56	
Other improvements	34,786.29	
Total permanent investments		\$9,726,160.50
Cash	\$224,135.72	
Bills receivable	136,000.00	
Due from agents and companies	735,314.20	
Materials and supplies	378,171.43	
Debit balances	171,720.55	
Vermont & Massachusetts R. R. and improvements	1,323,081.52	
Total cash assets		2,968,423.42
Total assets (as per books of the company)		\$12,694,583.92
LIABILITIES.		
Capital stock		\$5,286,600.00
Funded debt		5,140,600.00
Unfunded debt, viz.:		1,857,051.20
Interest unpaid	\$108,620.50	
Dividends unpaid	8,408.00	
Notes payable	828,300.00	
Vouchers and accounts	911,722.70	
Profit and loss balance		410,332.72
Total liabilities (as per books of the company)		\$12,694,583.92
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		1,280,868
Freight-train mileage		1,159,645
Total revenue train mileage		2,440,513
Switching-train mileage		703,286
Other train mileage		56,307
Total train mileage		3,200,106
Number of season-ticket passengers *	297,313	
Number of local passengers (including season)		3,863,556
Number of through passengers (to and from other roads going over and beyond this road)		266,839
Total number of passengers carried		4,130,395
Local passenger mileage (local passengers carried one mile)		45,862,118
Through passenger mileage (through passengers carried one mile)		15,211,669
Total passenger mileage		61,073,787
Number tons local freight		781,665
Number tons through freight (to and from other roads going over and beyond this road)		1,727,466

* Reckoning twelve passengers per week for time of each season ticket.

Total number tons freight carried	2,509,131
Local freight mileage (tons local freight carried one mile)	29,276,668
Through freight mileage (tons through freight carried one mile) *	165,836,414
Total freight mileage	195,113,082
Average number of persons employed	2,327

DESCRIPTION OF ROAD.

Main line of road from Boston to Fitchburg	50.0 miles.
Double track on main line	50.0 "
Branches owned by the company, viz. :	
Freight and ice in Boston (double track) . . . . .	.68 "
Watertown Branch (single track)	8.26 "
Lancaster, Sterling & Marlborough (single track)	12.42 "
Peterborough & Shirley (single track)	23.62 "
Worcester Division (single track)	36.0 "
Ashburnham (single track)	2.59 "
Total length of branches owned by company	83.57 "
Total length of branches owned by company in New Hampshire	9.37 "
Double track on branches . . . . .	.68 "
Total road belonging to this company	133.57 "
Sidings and other tracks not above enumerated	83.07 "
Same in New Hampshire	1.41 "
Total length of track, computed as single track	267.32 "
Same in New Hampshire	10.78 "
Total length of steel rails in tracks, not including steel-top rails	162.53 "
[Weights per yard, 60 and 72 lbs.]	

Roads and Branches belonging to other Companies operated by this Company under lease or contract.

Vermont & Massachusetts R. R.	56.0 miles.
Turner Falls Branch	2.8 "
Troy, Greenfield & Hoosac Tunnel R. R.	37.0 "
Total length of above roads	95.8 "
Total length of above roads in Massachusetts	95.8 "
Total miles of road operated by this company	229.37 "
Total miles of road operated by this company in New Hampshire	9.37 "
Number of stations in New Hampshire on all roads operated by this company	3
Number of telegraph offices in same	1
Number of stations on all roads owned by this company	64
Same in New Hampshire	3

* Carried to and from other roads.

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives.....	10	102	112
“ passenger cars.....	15	116	131
“ parlor or sleeping cars.....			
“ baggage, mail, and express cars	3	26	29
“ freight cars (basis of 8 wheels)..	233	3,164	3,397
“ other cars.....		160	160
Snow-plows			10

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers							1	5
Employés							10	66
Others							10	19

GENERAL INFORMATION.

Maximum weight of locomotives in working order .	56 tons.
Average “ “ “ “	45½ “
Maximum weight of tenders full of fuel and water .	35 “
Average “ “ “ “	26 “
Maximum weight of passenger cars	23 “
Average “ “	20 “
“ “ mail and baggage cars	18 “
“ “ 8-wheel box freight cars	10 “
“ “ 4-wheel “	4½ “
“ “ 8-wheel platform cars	7½ “
“ “ 4-wheel “	3 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	46¾ feet.
Total length of heaviest engine and tender over all	57¾ “

Number of miles of road operated by this company not furnished with telegraph facilities:	
From Ashburnham Junction to Ashburnham	2.59 miles.
Charges for the transportation of company's supplies are not included in earnings as reported for this road.	

BRIDGES.

Number of trestle bridges of 25 feet length and upwards *	13
Aggregate length of same for single track	1,034 ft.
“ “ double “	904 “
“ “ triple “	2,427 “
Number of spans of iron bridges of 25 feet and upwards *	15
Aggregate length of same for single track	367 ft.
“ “ double “	580 “
“ “ triple “	45 “
Number of spans of timber bridges of 25 feet and upwards *	4
Aggregate length of same for single track	145 ft.
“ “ double “	25 “
“ “ triple “	44 “
Number of crossings of highways at grade *	188
“ “ “ over railroad	24
“ “ “ under railroad	11
Number of highway bridges 18 feet above track	4
Number of highway bridges less than 18 feet above track	20
Number of crossings at which gates or flagmen are maintained	68
Number of crossings at which electric signals are maintained *	18
Number of crossings at which there are neither signals nor flagmen *	120
Number of railroad crossings at grade: *	7
Boston & Maine.	
Eastern.	
Boston & Albany.	
Old Colony, at Concord.	
Worcester, Nashua & Rochester, main line.	
Worcester, Nashua & Rochester (Peterborough & Shirley).	
Old Colony, at Fitchburg.	
Number of railroad crossings under other railroads: *	3
Boston & Lowell.	
Central Massachusetts (Weston).	
“ “ (Hudson).	

* In New Hampshire, on miles of road owned.

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company*	1.73 cents.
Average rate of fare per mile received from passengers to and from other roads	1.76 “
Average rate of fare per mile for season-ticket passengers †	.66 “
Average rate of fare per mile received from all passengers	1.75 “
Average rate of local freight per ton per mile*	2.53 “
Average rate of freight per ton per mile received from freight to and from other roads	.81 “
Average rate of freight per ton per mile received from all freight	1.07 “

CAPITAL STOCK.

Capital stock authorized by charter	\$7,114,000.00	
Capital stock authorized by votes of company	6,814,000.00	
Capital stock issued (number of shares, 52,866); amount paid in		\$5,286,600.00
Total amount paid in (as per books of the company)		5,286,600.00
Total number of stockholders	3,064	
Number of stockholders in New Hampshire	233	
Amount of stock held in New Hampshire	\$248,800.00	

DEBT.

Funded debt, as follows:

Bonds due April 1, 1894; rate of interest, 7 per cent	\$500,000.00
Interest paid on same during year	\$35,000.00
Bonds due October 1, 1897; rate of interest, 6 per cent	500,000.00
Interest paid on same during year	\$30,000.00
Bonds due October 1, 1899; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Bonds due October 1, 1900; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Bonds due October 1, 1901; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00

* Rates as per tariff.

† Reckoning twelve passengers per week for time of each season ticket.

Bonds due April 1, 1902; rate of interest, 5 per cent	\$500,000.00
Interest paid on same during year	\$25,000.00
Bonds due April 1, 1903; rate of interest, 5 per cent	500,000.00
Interest paid on same during year	\$25,000.00
Bonds due April 1, 1904; rate of interest, 4 per cent	500,000.00
Interest paid on same during year	\$20,000.00
Bonds due June 1, 1905; rate of interest, 4 per cent	500,000.00
Interest paid on same during year	\$20,000.00
Boston, Barre & Gardner R. R. 1st mortgage bonds, due April 1, 1893; rate of interest, 7 per cent	91,300.00
Interest paid on same during year	\$6,391.00
Boston, Barre & Gardner R. R. 1st mortgage bonds, due April 1, 1893; rate of interest, 5 per cent	299,700.00
Interest paid on same during year	\$14,985.00
Boston, Barre & Gardner R. R. 2d mortgage bonds, due July 1, 1895; rate of interest, 3 per cent	186,300.00
Interest paid on same during year	\$5,589.00
Boston, Barre & Gardner R. R. 3d mortgage bonds, due July 1, 1895; rate of interest, 6 per cent	57,300.00
Interest paid on same during year	\$3,438.00
Ashburnham 1st mortgage bonds, due June 1, 1887; rate of interest, 6 per cent	6,000.00
Interest paid on same during year	\$360.00
Total amount of funded debt	\$5,140,600.00

NAMES AND RESIDENCES OF OFFICERS.

E. B. Phillips, *President*, Boston, Mass.; J. W. Whitmore, *Traffic Manager*, Boston, Mass.; C. S. Anthony, *Auditor*, Boston, Mass.; John Adams, *Superintendent*, Boston, Mass.; C. L. Hartwell, *General Freight Agent*, Waltham, Mass.; J. R. Watson, *General Passenger Agent*, Boston, Mass.; M. D. Benson, *Treasurer*, Cambridge, Mass.; Thomas Whittemore, *Clerk of Corporation*, Cambridge, Mass.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

E. B. Phillips, Boston, Mass.; Seth Bemis, Newton, Mass.; Robert Codman, Boston, Mass.; Rodney Wallace, Fitchburg, Mass.; Franklin N. Poor, Somerville, Mass.; Charles T. Crocker, Fitchburg, Mass.; Charles A. Welch, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:
FITCHBURG RAILROAD COMPANY,
BOSTON, MASS.

E. B. PHILLIPS,
ROBERT CODMAN,
RODNEY WALLACE,
FRANKLIN N. POOR,
C. T. CROCKER,
CHARLES A. WELCH,
Directors.
M. D. BENSON,
Treasurer.
JOHN ADAMS,
Superintendent.

STATE OF MASSACHUSETTS.

SUFFOLK, ss. December 2, 1886. Then personally appeared E. B. Phillips, Robert Codman, Rodney Wallace, Franklin N. Poor, C. T. Crocker, Charles A. Welch, M. D. Benson, and John Adams, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

THOMAS WHITTEMORE, *Justice of the Peace.*

REPORT

OF THE

MOUNT WASHINGTON RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$31,202.17
Total expense (including taxes)		14,580.14
Net income		16,622.03
Interest accrued during year on debt		600.00
Dividends declared (10 per cent)		12,950.00
Balance for the year		3,072.03
Balance at commencement of year	\$12,290.55	
Add cash received for wood burned	480.00	
	<u>\$12,770.55</u>	
Increase in passenger receipts	142.75	
	<u>\$12,913.30</u>	
Deduct:		
For provisions }	\$33.00	
For labor, cutting wood	19.73	
	200.00	
	<u>\$252.73</u>	
Balance at commencement of year as so changed		\$12,660.67
Balance September 30, 1886 (surplus)		15,732.60
ANALYSIS OF EARNINGS.		
From local passengers (all passengers starting from or stopping at any station on this road) *	}	\$30,267.00
From through passengers (to and from other roads over and beyond this road)		

*Including passengers and freight to and from other roads starting from or stopping at stations on this road.

From mails	\$149.59
Total earnings from passenger department . . .	30,416.59
From local freight (all freight starting from or stop- ping at any station on this road) *	252.00
Income from all other sources, viz.:	
Interest	\$399.46
Miscellaneous	134.12
	<hr/>
	533.58
Total income from all sources	31,202.17

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks	\$1,050.00
Insurance	255.50
Stationery and printing }	80.90
Outside agencies and advertising }	
Contingencies and miscellaneous	161.55
Repairs of road-bed and track	3,465.76
Repairs of locomotives	646.63
Fuel for locomotives	2,097.75
[Cords of wood, 612.]	
Oil and waste	145.75
Locomotive service †	1,859.75
Repairs of passenger cars	323.31
Passenger-train service †	800.01
Freight on supplies and lumber	604.14
Telegraph expenses and clerk	139.34
Station supplies	1,381.33
Total operating expenses	<hr/> \$13,011.72
Taxes, state	1,568.72
Total operating expenses and taxes	<hr/> \$14,580.14

Balance-Sheet, September 30, 1886.

ASSETS.	
Cost of road }	\$139,500.00
Cost of equipment }	
Cash	\$15,732.60
Total cash assets	15,732.60
Total assets (as per books of the company) . . .	<hr/> \$155,232.60
LIABILITIES.	
Capital stock	\$129,500.00
Notes payable	10,000.00
Profit and loss balance	15,732.60
Total liabilities (as per books of the company) . . .	<hr/> \$155,232.60

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

† Salaries and wages.

MILEAGE, TRAFFIC, ETC.	
Number of local passengers (including season and free)	11,031
Number of through passengers (to and from other roads going over and beyond this road)	
Total number of passengers carried	11,031
Local passenger mileage (local passengers carried one mile, not including free)	64,723 $\frac{1}{3}$
Through passenger mileage (through passengers carried one mile, including free)	
Total passenger mileage	64,723 $\frac{1}{3}$
Number tons local freight	16 $\frac{8}{10}$
Total number tons freight carried	16 $\frac{8}{10}$
Local freight mileage (tons local freight carried one mile)	56
Through freight mileage (tons through freight carried one mile) *	
Total freight mileage	56
Average number of persons employed	25 to 30
DESCRIPTION OF ROAD.	
Main line of road from base of Mt. Washington to summit	3.333 miles.
Main line of road in New Hampshire	3.333 "
Total road belonging to this company	3.333 "
Total length of track, computed as single track	3.333 "
Same in New Hampshire	3.333 "
Total miles of road operated by this company	3.333 "
Total miles of road operated by this company in New Hampshire	3.333 "
Number of stations on all roads owned by this company	2
Same in New Hampshire	2

EQUIPMENT.

	Leased.	Owued.	Total.
Number of locomotives.....		6	6
“ passenger cars.....		7	7
“ baggage, mail, and express cars.....		1	1
“ freight cars (basis of 8 wheels)...		2	2

* Carried to and from other roads.

GENERAL INFORMATION.

Maximum weight of locomotives in working order	12 tons.
Average " " " "	12 "
Maximum weight of tenders full of fuel and water : included in weight of locomotive.	
Maximum weight of passenger cars	3 "
Average " " " "	2 $\frac{3}{4}$ "
" " mail and baggage cars	$\frac{1}{4}$ ton.
" " 4-wheel box freight cars	1 $\frac{1}{2}$ tons.
" " 4-wheel platform cars	1 $\frac{1}{2}$ "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	15 feet.
Total length of heaviest engine and tender over all	18 "
Number locomotives equipped with train brake, all. [Kind of brake, Westinghouse.]	
Number of cars equipped with train brake, all. [Kind of brake, Westinghouse.]	

CAPITAL STOCK.

Capital stock authorized by votes of company	\$129,500.00
Capital stock issued (number of shares, 1,295); amount paid in	[\$129,500.00
Total amount paid in (as per books of the com- pany)	129,500.00
Total number of stockholders	30
Number of stockholders in New Hampshire	21
Amount of stock held in New Hampshire	\$80,000

NAMES AND RESIDENCES OF OFFICERS.

John H. George, *President*, Concord, N. H. ; Walter Aiken, *General Manager*, Franklin Falls, N. H. ; Lucius Tuttle, *General Passenger Agent*, Boston, Mass. ; Edward D. Harlow, *Treasurer*, Boston, Mass. ; A. E. Brown, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

John H. George, Concord, N. H. ; Nathaniel White, Jr., Concord, N. H. ; Walter Aiken, Franklin Falls, N. H. ; Alvah W. Sulloway, Franklin Falls, N. H. ; Emmons Raymond, Boston, Mass. ; John H. Mitchell, Concord, N. H. ; J. Thomas Vose, Boston, Mass.

PROPER ADDRESS OF THE COMPANY:

MOUNT WASHINGTON RAILROAD,

President and Clerk's Office, CONCORD, N. H.

Treasurer's Office, BOSTON, MASS.

WALTER AIKEN,

Director.

EDWARD D. HARLOW,

Treasurer.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, SS. BOSTON, January 7, 1887. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE N. CARPENTER,

Justice of the Peace.

REPORT

OF THE

PORTLAND & ROCHESTER RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$191,503.06
Total expense (including taxes)	148,909.03
Net income	42,594.03
Dividends declared (5 per cent)	29,516.97
Balance for the year	13,077.06
Balance at commencement of year	\$62,453.71
Deduct	6,498.68
Balance at commencement of year as so changed	55,955.03
Balance September 30, 1886 (surplus)	69,032.09
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)* and from through passengers (to and from other roads over and beyond this road)	\$70,719.39
From express	2,579.50
From mails	6,912.96
Total earnings from passenger department	80,211.85
From through freight (to and from other roads over and beyond this road) and from local freight (all freight starting from or stopping at any station on this road)*	109,888.56
From other sources, freight department	276.86
Total earnings from freight department	110,165.42
Total transportation earnings	190,377.27
Income from all other sources	1,125.79
Total income from all sources	\$191,503.06

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

ANALYSIS OF EXPENSES.	
Salaries of general officers	\$6,500.00
Legal expenses	736.55
Insurance	584.63
Stationery	212.21
Outside agencies, advertising and printing	1,621.74
Contingencies and miscellaneous	3,982.17
Repairs of bridges	4,643.83
Repairs of buildings, etc.	4,949.43
Repairs of fences, road-crossings, and signs	2,204.28
Renewal of rails	8,621.34
[Number tons steel laid, 702.13, less old rails.]	
Renewal of ties	5,741.59
[Number laid, 19,404.]	
Repairs of road-bed and track	28,729.15
Repairs of locomotives	6,174.89
New locomotive, charged operating expenses	6,000.00
Fuel for locomotives	14,316.58
Water supply	925.55
Oil and waste	1,676.49
Locomotive service *	9,284.84
Repairs of passenger cars	4,724.96
Passenger-train service *	3,687.95
“ supplies	289.86
Repairs of freight cars	7,245.70
Freight-train service *	7,707.55
“ supplies	52.52
Telegraph expenses	688.92
Loss and damage, freight and baggage	236.85
“ “ property and cattle	65.25
Agents' and station service *	7,533.44
Watchmen and switchmen	6,569.76
Station supplies	239.57
Fuel for shops, etc.	1,014.16
Total operating expenses	\$146,961.76
Taxes, state	1,544.62
“ local	402.65
Total operating expenses and taxes ^	\$148,909.03
Balance-Sheet, September 30, 1886.	
ASSETS.	
Cost of road }	\$591,357.19
Cost of equipment }	

* Salaries and wages.

Cash	\$10,597.19	
Bills receivable	41,848.02	
Due from agents and companies	3,184.12	
Materials and supplies	13,402.76	
Total cash assets		\$69,032.09
Total assets (as per books of the company)		\$660,389.28
LIABILITIES.		
Capital stock issued		\$591,357.19
Profit and loss balance		69,032.09
Total (not included in Balance-Sheet)		\$660,389.28
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		77,475
Freight-train mileage		65,492
Total revenue train mileage		142,967
Switching-train mileage		29,269
Other train mileage		8,512
Total train mileage		180,748
Number of local passengers (including season)		185,047
Number of through passengers (to and from other roads going over and beyond this road)		21,931
Total number of passengers carried		206,978
Number tons local freight		62,639
Number tons through freight (to and from other roads going over and beyond this road)		53,059
Total number tons freight carried		115,698
Average number of persons employed		150
DESCRIPTION OF ROAD.		
Main line of road from Portland, Me., to Rochester, N. H.	52.5	miles.
Main line of road in New Hampshire	3.5	"
" " in Maine	49.0	"
Sidings and other tracks not above enumerated	11.16	"
Same in New Hampshire	1.35	"
Total length of steel rails in tracks, not including steel-top rails	52.5	"
[Weight per yard, 56 lbs.]		
Number of stations in New Hampshire on all roads operated by this company	2	
Number of telegraph offices in same	2	
Number of stations on all roads owned by this company	18	
Same in New Hampshire	2	

EQUIPMENT.	
Number of locomotives	8
“ passenger cars	9
“ baggage, mail, and express cars	5
“ freight cars (basis of 8 wheels)	211
GENERAL INFORMATION.	
Maximum weight of locomotives in working order .	40 tons.
Average “ “ “ “	33 “
Maximum weight of tenders full of fuel and water	18 “
Average “ “ “ “	14 “
Maximum weight of passenger cars	19 “
Average “ “ “	16 “
“ “ mail and baggage cars	13 “
“ “ 8-wheel box freight cars	9 “
“ “ 8-wheel platform cars	7½ “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	42½ feet.
Total length of heaviest engine and tender over all	50½ “
Number of locomotives equipped with train brake .	4
[Kind of brake, Westinghouse automatic.]	
Number of cars equipped with train brake	7
[Kind of brake, Westinghouse automatic.]	
Number of passenger cars with Miller platform and buffer	8
RATES OF FARE, ETC.	
Average rate of fare per mile received from passen- gers to and from other roads	3.5 cents.
Average rate of fare per mile for season-ticket pas- sengers *	1.0 “
Average rate of fare per mile received from all pas- sengers	2.5 “
CAPITAL STOCK.	
Capital stock authorized by charter . \$600,000.00	
Capital stock paid in on shares not issued	\$588,617.19
Total number of stockholders	96
Number of stockholders in New Hampshire	3
Amount of stock held in “ “ \$1,100.00	

NAMES AND RESIDENCES OF OFFICERS.

George P. Wescott, *President*; Joseph W. Peters, *Superintendent*
and *General Passenger Agent*; William H. Conant, *Treasurer* and
Clerk of Corporation.

* Reckoning twelve passengers per week for time of each season ticket.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

George P. Wescott, Nathan Webb, W. L. Putnam, C. McCarthy, Jr., Portland, Me. ; I. S. Ricker, Deering, N. H. ; George C. Lord, Newton, Mass. ; Richard Olney, Boston, Mass. ; Arthur Sewall, Bath, Me. ; Stephen J. Young, Brunswick, Me.

PROPER ADDRESS OF THE COMPANY :

PORTLAND & ROCHESTER RAILROAD,
PORTLAND, ME.

WILLIAM H. CONANT,
Treasurer.

STATE OF MAINE.

CUMBERLAND, ss. March 2, 1887. Then personally appeared William H. Conant, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOHN A. WATERMAN,
Justice of the Peace.

REPORT

OF THE

RECEIVER OF THE PORTLAND & OGDENSBURG RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$393,591.52
Total expense (including taxes)	239,594.12
Net income	153,997.40
Interest accrued during year:	12,762.12
On receiver's certificates	\$12,500.00
On other debt	262.12
Balance for the year (surplus)	109,020.06
Balance at commencement of year (deficit)	\$99,495.61
Add:	
Sundry accounts	808.30
New shops	8,708.98
Grading	5,110.81
Bridging	16,062.12
	\$130,185.82
Deduct:	
Old rails sold	\$32,205.22
Sundry accounts	10.00
	\$32,215.22
Balance at commencement of year as so changed	97,970.60
Balance September 30, 1886 (surplus)	11,049.46
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road) *	\$59,479.18
From through passengers (to and from other roads over and beyond this road)	72,708.97

*Including passengers and freight to and from other roads starting from or stopping at stations on this road.

From express and extra baggage	\$4,660.55
“ mails	8,129.90
From other sources, passenger department	912.57
Total earnings from passenger department	145,891.17
From local freight (all freight starting from or stopping at any station on this road) *	132,850.67
From through freight (to and from other roads over and beyond this road)	82,445.72
From other sources, freight department	188.74
Total earnings from freight department	215,485.13
Total transportation earnings	361,376.30
Income from all other sources, viz.:	32,215.22
Old rails sold	\$32,205.22
Sundry accounts	10.00
Total income from all sources	\$393,591.52

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks }	\$14,930.35
Legal expenses and miscellaneous }	
Insurance	1,326.94
Repairs of bridges (including culverts and cattle- guards)	2,125.73
Repairs of buildings	3,309.17
Repairs of fences, road-crossings, and signs	1,589.62
Repairs of machine-shops and machinery and gen- eral expense of shops	4,431.27
Removing ice and snow	3,383.13
Renewal of ties	3,922.47
Repairs of road-bed and track	28,807.73
New locomotives	6,600.00
Repairs of locomotives	13,930.63
Repairs of snow-plows	574.23
Fuel for locomotives	34,595.16
“ stations and shops	1,932.24
Water supply	1,015.60
Oil and waste	2,918.20
Switchmen, watchmen, flagmen, and signalmen	7,227.76
Repairs of passenger, baggage, and mail cars	10,421.49
Passenger-train service † }	13,976.13
“ supplies }	
Repairs of freight cars	15,125.04
Freight-train service † }	19,957.14
“ supplies }	
Mileage freight cars †	10,907.16
Telegraph expenses	704.08
Loss and damage, freight and baggage	458.49
Personal injuries	711.57

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

† Salaries and wages. ‡ Debit balances.

Agents' and station service * }		\$32,308.97
Station supplies . . }		
Taxes, state }		2,343.82
" local }		
Total operating expenses and taxes . .		\$239,594.12
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.		
Grading and masonry		\$5,741.51
Bridging		16,062.12
Superstructure, including rails		580.00
Passenger and freight stations, wood-sheds, and water-stations		349.32
Engine-houses, car-sheds, and turn-tables . .		4,598.64
Machine-shops and carpenter-shops		2,550.32
Total for construction		\$29,881.91
Net addition to property for the year . .		29,881.91
Balance-Sheet, September 30, 1886.		
ASSETS.		
Accounts and coupons of P. & O. R. R. paid .		\$214,153.76
Cash	\$40,860.23	
Due from agents and companies	39,162.78	
Materials and supplies	10,368.89	
Debit balances	14,126.40	
Total cash assets		104,518.30
Total assets (as per books of the company) .		\$318,672.06
LIABILITIES.		
Funded debt, receiver's loan certificates . . .		\$250,000.00
Unfunded debt, vouchers and accounts . . .		57,622.60
Profit and loss balance		11,049.46
Total liabilities (as per books of the company)		\$318,672.06
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		138,791
Freight-train mileage		123,827
Total revenue train mileage		262,618
Switching-train mileage		53,974

* Salaries and wages.

Other train mileage	11,346
Total train mileage	327,938
Number of local passengers (including season) .	89,776
Number of through passengers (to and from other roads going over and beyond this road) . .	57,731
Total number of passengers carried . . .	147,507
Local passenger mileage (local passengers carried one mile)	1,987,465.8
Through passenger mileage (through passengers carried one mile)	2,142,749.5
Total passenger mileage	4,130,215.3
Number tons local freight	136,715.2
Number tons through freight (to and from other roads going over and beyond this road) . .	141,836
Total number tons freight carried	278,551.2
Local freight mileage (tons local freight carried one mile)	3,182,441
Through freight mileage (tons through freight carried one mile) *	11,576,911
Total freight mileage	14,759,352
Average number of persons employed	333

DESCRIPTION OF ROAD.

Main line of road from Portland, Me., to Fabyan's, N. H.	89.034 miles.	
Main line of road from Scott's, N. H., to Vermont line	2.32	"
	<hr/>	
Main line of road in New Hampshire	40.544	"
" " in Maine	50.81	"
Total road belonging to this company	91.354	"
Sidings and other tracks not above enumerated .	21.0	"
Total length of track, computed as single track .	112.354	"
[Weights per yard, 60, 56, and 50 lbs.]		
Total miles of road operated by this company .	91.354	"
Total miles of road operated by this company in New Hampshire	40.544	"
Number of stations in New Hampshire on all roads operated by this company	9	
Number of telegraph offices in same	4	
Number of stations on all roads owned by this company	22	
Same in New Hampshire	9	

* Carried to and from other roads.

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives	4	11	15
“ passenger cars.....	6	14	20
“ parlor or sleeping cars... ..	1	4	5
“ baggage, mail, and express cars.....			
“ freight cars (basis of 8 wheels)...			250
“ other cars			11

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....								1
Employés ..	1	1			1	1	4	3
Others.....								2

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

April 11, 1886. — Albert Billings, conductor of construction train, struck by piece of bridge iron and ankle broken, at Bartlett.

August 4. — George Harmon, freight brakeman, fell from car near Cook's cut in Conway, and had his neck broken.

GENERAL INFORMATION.	
Maximum weight of locomotives in working order .	90,000 lbs.
Average “ “ “ “	72,000 “
Maximum weight of tenders full of fuel and water	60,000 “
Average “ “ “ “	50,000 “
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	43 feet.
Total length of heaviest engine and tender over all	51 “

Number of locomotives equipped with train brake .	11
[Kind of brake, Eames.]	
Number of cars equipped with train brake . . .	21
[Kind of brake, Eames.]	
Number of passenger and baggage cars with Miller platform and buffer	21

BRIDGES BUILT WITHIN THE YEAR IN NEW HAMPSHIRE.

Location.	Kind.	Material.	Length.	When built.
Saco River, No. 4.	Truss — Pratt.....	Iron	178 ft.	1885. Oct. and Nov.
“ “ No. 5.	“ “	“	172 “	“
Sawyer's River...	Plate Girder.....	“	164 “	“
Bemis Brook.....	“ “	“	22 “	“

BRIDGES.

Number of iron bridges of 25 feet and up- wards*	3,172 ft.	16
Number of timber bridges of 25 feet and up- wards*	1,069 ft.	17
Number of crossings of highways at grade* . . .		59
“ “ “ over railroad . . .		3
“ “ “ under “ . . .		2
“ of highway bridges less than 18 feet above track		3
Number of crossings at which gates or flagmen are maintained		1
Number of railroad crossings at grade:* . . .		4
Maine Central, at Portland, Me.		
Boston & Maine, at Portland, Me.		
Portland & Rochester, at Westbrook, Me.		
Boston, Concord & Montreal, at Fabyan's, N. H.		

NAMES AND RESIDENCES OF OFFICERS.

Samuel J. Anderson, *Receiver*, Portland, Me.; John F. Anderson, *Chief Engineer*, Portland, Me.; Jonas Hamilton, *Superintendent*, Portland, Me.; Walter Tolman, *General Freight Agent*, Portland Me.;

* On miles of road owned in New Hampshire.

Charles H. Foye, *General Passenger Agent*, Portland, Me. ; John W. Dana, *Treasurer*, Portland, Me. ; Charles H. Foye, *Clerk of Corporation*, Portland, Me.

PROPER ADDRESS OF THE COMPANY :

PORTLAND & OGDENSBURG RAILWAY,
PORTLAND, ME.

SAMUEL J. ANDERSON,
Receiver.

STATE OF MAINE.

CUMBERLAND CO., ss. December 31, 1886. Then personally appeared Samuel J. Anderson, receiver of Portland & Ogdensburg Railroad Company, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOHN W. DANA,
Justice of the Peace.

REPORT

OF THE

PROFILE & FRANCONIA NOTCH RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.		
Total income		\$20,643.14
Total expense (including taxes)		10,351.82
Net income		10,291.32
Dividends declared (4 per cent)		8,000.00
Balance for the year		2,291.32
Balance at commencement of year		1.62
Balance November 1, 1886		2,292.94
ANALYSIS OF EARNINGS.		
From local passengers (all passengers starting from or stopping at any station on this road)* . .		\$19,873.21
From express and extra baggage		338.63
From mails		219.63
Total earnings from passenger department . .		20,431.47
Total earnings from freight department . .		209.25
Total transportation earnings		20,640.72
Income from all other sources		2.42
Total income from all sources		\$20,643.14
Balance-Sheet, September 30, 1886.		
ASSETS.		
Cost of road	\$191,071.99	
Cost of equipment	24,945.03	
Total permanent investments		\$216,017.02
Cash	\$2,292.94	
Total cash assets		2,292.94
Total assets (as per books of the company) . .		\$218,309.96

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

LIABILITIES.	
Capital stock	\$200,000.00
Paid on account construction above capital stock . .	16,017.02
Profit and loss balance, cash on hand November 1, 1886	2,292.94
Total liabilities (as per books of the company)	\$218,309.96
DESCRIPTION OF ROAD.	
Main line of road from Profile House to Bethlehem Junction and Bethlehem	13 $\frac{1}{8}$ miles.
Total length of steel rails in tracks, not including steel-top rails	13 $\frac{1}{8}$ "
[Weights per yard, 10 miles, 35 lbs., steel.]	
[" " 3 $\frac{1}{8}$ " 40 " "]	
EQUIPMENT.	
Number of locomotives	3
Number of passenger cars	4
Number of baggage, mail, and express cars (1 baggage and 2 combination)	3
Number of freight cars (basis of 8 wheels)	6
Number of other cars (push and hand cars) . . .	5
GENERAL INFORMATION.	
Number of locomotives equipped with train brake .	3
[Kind of brake, Westinghouse power brake.]	
Number of cars equipped with train brake	7
Number of passenger cars with Miller platform and buffer	7
BRIDGES.	
Number of trestle bridges of 25 feet length and upwards*	1
Aggregate length of same for single track 130 ft.	
Number of spans of iron bridges of 25 feet and upwards*	1
Aggregate length of same for single track 290 ft.	
Number of spans of timber bridges of 25 feet and upwards*	2
Aggregate length of same for single track 130 ft.	
Number of crossings of highways at grade* . . .	3
Number of crossings at which there are neither signals nor flagmen*	3

* In New Hampshire, on miles of road owned.

Number of railroad crossings at grade : *	.	.	3
Bethlehem Junction	.	.	1
Maplewood	.	.	1
Bethlehem	.	.	1
CAPITAL STOCK.			
Capital stock authorized by charter .	\$200,000.00		
Capital stock authorized by votes of company	200,000.00		
Capital stock issued (number of shares, 2,000) ; amount paid in		\$200,000.00	
Total amount paid in (as per books of the company)		200,000.00	
Total number of stockholders	63		
Number of stockholders in New Hampshire	48		
Amount of stock held in	"	"	\$153,000.00

NAMES AND RESIDENCES OF OFFICERS.

John H. George, *President*, Concord, N. H. ; E. Raymond and S. N. Bell, *Auditors* ; C. H. Greenleaf, *Superintendent, General Freight Agent, General Passenger Agent, and Treasurer*, Profile House, N. H. ; Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Emmons Raymond and Isaac S. Craft, Boston, Mass. ; John H. George and John A. White, Concord, N. H. ; Samuel N. Bell, Manchester, N. H. ; Walter Aiken, Franklin, N. H. ; C. F. Eastman, Littleton, N. H.

PROPER ADDRESS OF THE COMPANY :

PROFILE & FRANCONIA NOTCH RAILROAD,
PROFILE HOUSE, N. H.

JOHN H. GEORGE,
President.

C. H. GREENLEAF,
Treasurer.

*On miles of road owned in New Hampshire.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. January 3, 1887. Then personally appeared John H. George, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

JOHN P. GEORGE,
Justice of the Peace.

REPORT

OF THE

SULLIVAN COUNTY RAILROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.

Total income		\$231,462.32
Total expense (including taxes)		169,790.14
Net income		61,672.18
Rentals:		3,600.00
Central Vermont Railroad Company	\$3,600.00	
Interest accrued during year		12,810.17
On other debt	\$12,810.17	
Dividends declared (8 per cent)		40,000.00
Balance for the year (surplus)		5,262.01
Balance at commencement of year	\$19,165.57	
Balance at commencement of year as so changed		19,165.57
Balance September 30, 1886 (surplus)		24,427.58

ANALYSIS OF EARNINGS.

From local passengers (all passengers starting from or stopping at any station on this road) *	\$17,085.04
From through passengers (to and from other roads over and beyond this road)	52,195.19
From express	3,033.32
From mails	4,229.08
Total earnings from passenger department	76,542.63
From local freight (all freight starting from or stopping at any station on this road) *	4,040.42
From through freight (to and from other roads over and beyond this road)	150,609.27
Total earnings from freight department	154,649.69
Total transportation earnings	231,192.32

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz. :	\$270.00
Rents from real estate	\$270.00
Total income from all sources	231,462.32
ANALYSIS OF EXPENSES.	
Salaries of general officers and clerks	\$6,005.29
Legal expenses	392.43
Insurance	480.50
Stationery and printing	821.60
Outside agencies and advertising	269.86
Contingencies and miscellaneous	375.80
Repairs of bridges (including culverts and cattle-guards)	217.46
Repairs of buildings	3,614.70
Repairs of fences, road-crossings, and signs	543.15
Renewal of rails	2,137.24
[Number tons steel laid, 57.]	
Renewal of ties	3,089.62
[Number laid, 7,242.]	
Repairs of road-bed and track	41,490.78
Repairs of locomotives	7,780.54
Fuel for locomotives	26,311.73
[Tons of coal, 5,419; cords of wood, 286.]	
Water supply	405.30
Oil and waste	1,080.98
Locomotive service *	13,937.41
Repairs of passenger cars	302.57
Passenger-train service *	2,374.87
" supplies	98.38
Mileage passenger cars †	6,778.00
Repairs of freight cars	4,627.12
Freight-train service *	9,834.53
" supplies	233.67
Mileage freight cars †	18,619.58
Telegraph expenses	531.86
Agents' and station service *	10,198.27
Station supplies	1,082.81
Total operating expenses	\$163,636.05
Taxes, state	6,101.63
" local	52.41
Total operating expenses and taxes	\$169,790.14
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Engineering, agencies, salaries, and other expenses during construction	\$343.11

* Salaries and wages.

† Debit balances.

Total for construction	\$343.11
Locomotives	4,136.77
Total for equipment	4,136.77
Total charges to property accounts	4,479.88
Property sold (or reduced in valuation on the books) and credited property accounts during the year:	
From No. 3	\$20,000.00
" 5	1,395.03
Total credits to property accounts	21,395.03
Net addition to property account for the year	16,915.15

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of road and other real estate	\$677,197.75	
Cost of equipment	24,025.63	
Total permanent investments		\$701,223.38
Due from agents and companies	\$118.93	
Total cash assets		118.93
Profit and loss balance		186.71
Total assets (as per books of the company)		\$701,529.02

LIABILITIES.

Capital stock	\$500,000.00
Unfunded debt, viz.:	177,101.44
Notes payable	\$25,000.00
Vouchers and accounts	152,101.44
Profit and loss balance (income account)	24,427.58
Total liabilities (as per books of the company)	\$701,529.02

MILEAGE, TRAFFIC, ETC.

Passenger-train mileage	64,714
Freight-train mileage	105,231
Total revenue train mileage	169,945
Switching-train mileage	25,953
Other train mileage	13,638
Total train mileage	209,536
Number of season-ticket passengers *	3,432
Number of local passengers (including season)	38,891
Number of through passengers (to and from other roads going over and beyond this road)	89,534
Total number of passengers carried	128,425

* Reckoning twelve passengers per week for time of each season ticket.

Local passenger mileage (local passengers carried one mile)	570,095
Through passenger mileage (through passengers carried one mile)	1,983,393
Total passenger mileage	2,553,488
Number tons local freight	3,577
Number tons through freight (to and from other roads going over and beyond this road) . . .	669,736
Total number tons freight carried	673,313
Local freight mileage (tons local freight carried one mile)	63,871
Through freight mileage (tons through freight carried one mile) *	16,999,914
Total freight mileage	17,063,785
Average number of persons employed	112

DESCRIPTION OF ROAD.

Main line of road from Bellows Falls, Vt., to Windsor, N. H.	26.0	miles.
Main line of road in New Hampshire	25.81	"
" " Vermont . . . . .	.19	"
Double track on main line	5.424	"
Same in New Hampshire	5.464	"
Total road belonging to this company	26.0	"
Sidings and other tracks not above enumerated . .	4.493	"
Same in New Hampshire	4.493	"
Total length of track, computed as single track .	35.917	"
Same in New Hampshire	35.727	"
Total length of steel rails in tracks, not including steel-top rails	35.727	"
[Weights per yard, 56 and 66 lbs.]		
Total miles of road operated by this company . .	26.0	"
Total miles of road operated by this company in New Hampshire	25.81	"
Number of stations in New Hampshire on all roads operated by this company	6	
Number of telegraph offices in same	5	
Number of stations on all roads owned by this company	8	
Same in New Hampshire	6	

EQUIPMENT.

Number of locomotives (leased)	10
--	----

* Carried to and from other roads.

LIST OF ACCIDENTS.

	From causes beyond their own control (in New Hampshire).		From their own misconduct or carelessness (in New Hampshire).		Total in New Hampshire.		Total on whole road operated.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers.....								
Employés.....			1		1		1	
Others.....				1		1		1

STATEMENT OF EACH ACCIDENT IN NEW HAMPSHIRE.

January 5, 1886. — George Provost, a trespasser, about 25 years of age, caught on to No. 5 freight train while passing Bellows Falls station. When about half way between Bellows Falls bridge and North Walpole, he either fell off or jumped off, breaking an arm and a leg. The arm was afterwards amputated.

April 24. — Thomas Flynn, employed on gravel train, jumped from moving train while going into gravel pit between Springfield station and North Charlestown, falling under the cars, which cut off one arm, broke one leg, and crushed his back. He died at 4 o'clock P. M. of same day.

BRIDGES.	
Number of spans of stone bridges of 25 feet and upwards *	1
Aggregate length of same for single track 26 ft.	
Number of spans of iron bridges of 25 feet and upwards *	4
Aggregate length of same for single track 639 ft.	
Number of spans of timber bridges of 25 feet and upwards *	8
Aggregate length of same for single track 1,174 ft.	
Number of crossings of highways at grade *	29
“ “ “ over railroad	2
“ “ “ under railroad	3
“ highway bridges 18 feet above track	2

* In New Hampshire, on miles of road owned.

Number of crossings at which there are neither signals nor flagmen *

29

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company †	2.996 cents.
Average rate of fare per mile received from passengers to and from other roads	2.631 "
Average rate of fare per mile for season-ticket passengers ‡	.158 "
Average rate of fare per mile received from all passengers	2.321 "
Average rate of local freight per ton per mile †	6.326 "
Average rate of freight per ton per mile received from freight to and from other roads	.88 "
Average rate of freight per ton per mile received from all freight	.909 "

CAPITAL STOCK.

Capital stock authorized by charter	\$500,000.00
“ “ by votes of company	500,000.00
Capital stock issued; amount paid in	\$500,000.00
Total amount paid in (as per books of the company)	500,000.00
Total number of stockholders	9

NAMES AND RESIDENCES OF OFFICERS.

A. B. Harris, *President*, Springfield, Mass.; W. G. McIntyre, *Auditor*, Springfield, Mass.; J. Mulligan, *Superintendent*, Springfield, Mass.; H. E. Howard, *General Freight Agent*, Springfield, Mass.; E. C. Watson, *General Ticket Agent*, Springfield, Mass.; E. F. Lane, *Treasurer*, Keene, N. H.; J. H. Albin, *Clerk of Corporation*, Concord, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

A. B. Harris, Springfield, Mass.; C. J. Amidon, Hinsdale, N. H.; H. C. Robinson, Hartford, Ct.; J. H. Albin, Concord, N. H.; Frederick Billings, Woodstock, Vt.; N. E. Martin, Concord, N. H.; J. H. Williams, Bellows Falls, Vt.

* In New Hampshire, on miles of road owned.

† Rates as per tariff.

‡ Reckoning twelve passengers per week for time of each season ticket.

PROPER ADDRESS OF THE COMPANY:
SULLIVAN COUNTY RAILROAD COMPANY,
SPRINGFIELD, HAMPDEN COUNTY, MASS.

A. B. HARRIS,
President.

C. J. AMIDON,
Director.

E. F. LANE,
Treasurer.

J. MULLIGAN,
Superintendent.

COMMONWEALTH OF MASSACHUSETTS.

HAMPDEN, SS. SPRINGFIELD, December 22, 1886. Then personally appeared A. B. Harris, C. J. Amidon, and J. Mulligan, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

GEO. E. FRINK,
Justice of the Peace.

STATE OF NEW HAMPSHIRE.

CHESHIRE, SS. December 25, 1886. Then personally appeared Elisha F. Lane, above-named treasurer, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

F. F. LANE, *Justice of the Peace.*

REPORT

OF THE

WHITEFIELD & JEFFERSON RAIL- ROAD COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

GENERAL EXHIBIT FOR THE YEAR.	
Total income	\$33,109.11
Total expense (including taxes)	27,345.31
Net income	5,763.80
Dividends declared (6 per cent)	10,200.00
Balance for the year (deficit)	4,436.20
Balance at commencement of year	\$23,120.69
Balance at commencement of year as so changed	23,120.69
Balance September 30, 1886 (surplus)	18,684.49
ANALYSIS OF EARNINGS.	
From local passengers (all passengers starting from or stopping at any station on this road)*	\$874.83
From through passengers (to and from other roads over and beyond this road)	1,632.01
From express and extra baggage	100.00
From mails	363.36
From other sources, passenger department	35.14
Total earnings from passenger department	3,005.34
From local freight (all freight starting from or stopping at any station on this road)*	28,026.87
From through freight (to and from other roads over and beyond this road)	294.93
From other sources, freight department	242.64
Total earnings from freight department	28,564.44
Total transportation earnings	31,569.78

* Including passengers and freight to and from other roads starting from or stopping at stations on this road.

Income from all other sources, viz.:		\$1,539.33
Rents of buildings	\$108.00	
Locomotive service	1,431.33	
Total income from all sources		\$33,109.11

ANALYSIS OF EXPENSES.

Salaries of general officers and clerks		\$292.75
Legal expenses		45.26
Insurance		476.86
Stationery and printing		170.55
Outside agencies and advertising		50.00
Contingencies and miscellaneous		691.64
Repairs of bridges (including culverts and cattle-guards)		100.00
Repairs of buildings		134.53
Repairs of fences, road-crossings, and signs		67.69
Renewal of rails		3,630.36
[Number tons steel laid, 100.]		
Renewal of ties		1,287.76
[Number laid, 6,014.]		
Repairs of road-bed and track		3,788.06
Repairs of locomotives		3,077.82
Fuel for locomotives		4,042.49
[Cords of wood, 2,403.]		
Water supply		8.00
Oil and waste		367.71
Locomotive service *		3,229.55
Repairs of passenger cars		1,001.28
Passenger-train service *		326.00
“ supplies		17.33
Repairs of freight cars		2,003.22
Freight-train service *		1,732.40
“ supplies		58.07
Mileage freight cars †		20.90
Telephone expenses		35.43
Loss and damage, freight and baggage		15.94
Agents' and station service *		575.75
Station supplies		58.18
Total operating expenses		\$27,305.53
Taxes, local		39.78
Total operating expenses and taxes		\$27,345.31

Balance-Sheet, September 30, 1886.

ASSETS.

Cost of road	}	\$189,504.39	
Cost of equipment			
Total permanent investments			\$189,504.39

* Salaries and wages.

† Debit balances.

Cash	\$1,900.51	
Total cash assets		\$1,900.51
Total assets (as per books of the company) .		\$191,404.90
LIABILITIES.		
Capital stock		\$170,000.00
Vouchers and accounts		2,720.41
Profit and loss balance		18,684.49
Total liabilities (as per books of the company)		\$191,404.90
MILEAGE, TRAFFIC, ETC.		
Passenger-train mileage		15,810
Freight-train mileage		13,990
Total revenue train mileage		29,800
Switching-train mileage		7,800
Other train mileage		1,020
Total train mileage		38,620
Number of local passengers (including season) .		2,783½
Number of through passengers (to and from other roads going over and beyond this road) . .		2,656½
Total number of passengers carried		5,440
Local passenger mileage (local passengers carried one mile)		24,524
Through passenger mileage (through passengers carried one mile)		26,565
Total passenger mileage		51,089
Number tons local freight		30,986
Number tons through freight (to and from other roads going over and beyond this road) . .		171
Total number tons freight carried		31,157
Local freight mileage (tons local freight carried one mile)		248,131
Through freight mileage (tons through freight carried one mile)*		1,713
Total freight mileage		249,844
Average number of persons employed		29
DESCRIPTION OF ROAD.		
Main line of road from Whitefield to Jefferson .		10.68 miles.
Main line of road in New Hampshire		10.68 "
Branch owned by the company, viz.:		
Camp Carroll		2.68 "
Total length of branch owned by company in New Hampshire		2.68 "

* Carried to and from other roads.

Total road belonging to this company	13.36 miles.
Sidings and other tracks not above enumerated	2.66 "
Same in New Hampshire	2.66 "
Total length of track, computed as single track	16.02 "
Same in New Hampshire	16.02 "
Total length of steel rails in tracks, not including steel-top rails	10.5 "
[Weight per yard, 50 lbs.]	
Total miles of road operated by this company	19
Total miles of road operated by this company in New Hampshire	19
Number of stations in New Hampshire on all roads operated by this company	4
Number of telephone offices in same	3
Number of stations on all roads owned by this com- pany	4
Same in New Hampshire	4

EQUIPMENT.

	Leased.	Owned.	Total.
Number of locomotives		4	4
" passenger cars		2	2
Number of freight cars (basis of 8 wheels), 11 platform and 30 4-wheel log cars.		51	51
Number of other cars.		4	4

GENERAL INFORMATION.

Maximum weight of locomotives in working order	30 tons.
Average " " " "	24 "
Maximum weight of tenders full of fuel and water	12 "
Average " " " "	10 "
Maximum weight of passenger cars	16 "
Average " " " "	16 "
" mail and baggage cars	12 "
Length of heaviest engine and tender, from center of forward truck-wheel of engine to center of rear wheel of tender	41 feet.
Total length of heaviest engine and tender over all	46 "
Number of locomotives equipped with train brake	2
[Kind of brake, Westinghouse.]	
Number of cars equipped with train brake	2
[Kind of brake, Westinghouse.]	

Number of passenger cars with Miller platform and buffer	2
---	---

BRIDGES.

Number of trestle bridges of 25 feet length and upwards*	1
---	---

Aggregate length of same for single track 505 ft.	
---	--

Number of crossings of highways at grade*	4
---	---

Number of crossings at which there are neither sig- nals nor flagmen*	4
--	---

RATES OF FARE, ETC.

Average rate of fare per mile (not including season tickets) for local passengers on roads operated by this company†	3 $\frac{2}{3}$ cents.
--	------------------------

Average rate of fare per mile received from pas- sengers to and from other roads	6 $\frac{1}{8}$ "
---	-------------------

Average rate of fare per mile received from all passengers	5 "
---	-----

Average rate of local freight per ton per mile†	11 $\frac{1}{3}$ "
---	--------------------

Average rate of freight per ton per mile received from freight to and from other roads	17 $\frac{1}{4}$ "
---	--------------------

Average rate of freight per ton per mile received from all freight	11 $\frac{1}{2}$ "
---	--------------------

CAPITAL STOCK.

Capital stock authorized by votes of company	\$170,000.00
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Capital stock issued (number of shares, 1,700); amount paid in	\$170,000.00
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Total amount paid in (as per books of the com- pany)	170,000.00
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Total number of stockholders	11
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Number of stockholders in New Hampshire	6
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Amount of stock held in " "	\$53,200.00
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NAMES AND RESIDENCES OF OFFICERS.

Nathan R. Perkins, *President*, Jefferson, N. H.; Alson L. Brown, *Superintendent*, Whitefield, N. H.; Lucius Tuttle, *General Passenger Agent*, Edward D. Harlow, *Treasurer*, Boston, Mass.; Samuel N. Bell, *Clerk of Corporation*, Manchester, N. H.

* On miles of road owned in New Hampshire.

† Rates as per tariff.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Edwin Mowry, Charles S. Mellen, Boston, Mass.; Samuel N. Bell, Manchester, N. H.; William A. Stowell, Montpelier, Vt.; Alson L. Brown, Warren G. Brown, Whitefield, N. H.; Nathan R. Perkins, Jefferson, N. H.; Ossian Ray, Lancaster, N. H.

PROPER ADDRESS OF THE COMPANY:

WHITEFIELD & JEFFERSON RAILROAD COMPANY,

Superintendent and Cashier's Office, WHITEFIELD, N. H.

Treasurer's and Transfer Office, 31 MILK STREET, BOSTON, MASS.

N. R. PERKINS,

A. L. BROWN,

W. G. BROWN,

Directors.

EDWARD D. HARLOW,

Treasurer.

A. L. BROWN,

Superintendent.

STATE OF NEW HAMPSHIRE.

COOS, ss. WHITEFIELD, November 12, 1886. Then personally appeared A. L. Brown, W. G. Brown, and N. R. Perkins, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

JAMES C. TRICKEY,

Justice of the Peace.

COMMONWEALTH OF MASSACHUSETTS.

SUFFOLK, ss. BOSTON, December 10, 1886. Then personally appeared Edward D. Harlow, and made oath to the truth of the foregoing statement by him subscribed, according to his best knowledge and belief.

GEORGE N. CARPENTER,

Justice of the Peace.

STREET RAILWAY REPORTS.

REPORT

OF THE

CONCORD STREET RAILWAY COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1886.

CAPITAL STOCK AND DEBT.		
CAPITAL STOCK.		
Capital stock authorized by charter	\$50,000.00	
Capital stock authorized by votes of company	50,000.00	
Capital stock paid (par value of shares, \$100)		\$50,000.00
Number of stockholders	84	
DEBT.		
Unfunded debt, as follows:		
Note	\$1,000.00	
Total gross debt		\$1,000.00
Amount of cash assets, viz.:		
Cash	\$329.71	
Supplies	984.00	
Net debt		1,313.71
PERMANENT INVESTMENTS.		
RAILWAY.		
Grading and paving	}	\$32,165.49
Track, including timber, rails, etc., and laying		
Interest during construction, commissions, dis-		
counts, etc.		
Engineering, agencies, salaries, and other ex-	}	32,165.49
penses during construction		
Total cost of construction		

EQUIPMENT.	
Horses	\$1,981.00
Cars	10,175.00
Two steam motors	6,200.00
Other articles of equipment	1,821.32
Total cost of equipment	\$20,177.32
LAND AND BUILDINGS.	
Land owned by company needed in operating road } Buildings " " " " " }	\$7,975.00
Total cost of land and buildings	7,975.00
Total amount of permanent investments	60,317.81
Cash assets	1,313.72
Total property and assets of the company	61,631.52
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Land and buildings, by increased appraisal	\$2,561.49
Property sold or reduced in valuation on the books: Equipment reduced by appraisal	256.36
Net addition to property for the year	\$2,305.13
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$18,334.16
Received from mails and express	14.05
" " sales of manure and pigs	69.50
Total earnings	\$18,417.71
Income from other sources:	88.67
Rent of house	\$50.78
Work at blacksmith-shop	37.89
Total income from all sources	\$18,506.38
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$1,179.00
Repairs of cars and other vehicles, harness, and horseshoeing	4,377.98
Repairs on buildings	250.00
Renewal of horses	295.00
Wages and salaries of president, treasurer, superin- tendent, and their clerks	720.00
Wages and salaries of all other persons employed in operating the road	5,796.08

Provender	\$3,906.73
Insurance	181.50
Office expenses and all other expenses not included above	351.05
Total expenses of operating	<u>\$17,057.34</u>

NET INCOME, DIVIDENDS, ETC.

Total net income above operating expenses . . .	\$1,449.04
Dividends declared (6 per cent for the year) . . .	2,700.00
Balance for the year, or deficit	1,250.96
Surplus at commencement of year	\$9,577.35
Deduct deficit	\$1,250.96
Decreased value of equipment	256.36
	<u>\$1,507.32</u>
	8,070.03
Add increased value of real estate	2,561.49
Total surplus December 31, 1886	10,631.52

INVENTORY OF EQUIPMENT DECEMBER 31, 1886.

Box cars	4
Open cars	5
Horses	15
Harnesses (pairs of)	13
Omnibuses	2
Sleighs	1
Other articles of equipment:	
Steam motors	2
Leveler	1
Carts	2
Wagon and sleds	3
Largest number of horses owned at any time during the year	16
Smallest number of horses owned at any time dur- ing the year	15

General Balance-Sheet, December 31, 1886.

ASSETS.

Construction	\$32,165.49
Equipment	20,177.32
Land and buildings	7,975.00
Cash and cash assets	1,313.71
Total assets	<u>\$61,631.52</u>

LIABILITIES.	
Capital stock	\$50,000.00
Unfunded debt	1,000.00
Surplus	10,631.52
Total liabilities	\$61,631.52
Copy of Profit and Loss Account for the Year Ending December 31, 1886.	
Dr.	
To expenses	\$16,706.29
interest	357.05
dividends	2,700.00
decreased value of equipment	256.36
balance carried forward	10,631.52
	\$30,645.22
Cr.	
By balance January 1, 1886	\$9,577.35
total income	18,506.38
increased value of real estate	2,561.49
	\$30,645.22
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	7 miles.
Aggregate length of switches, sidings, etc.	$\frac{3}{4}$ mile.
Total length of track, measured as single track	$7\frac{3}{4}$ miles.
Total length of track paved	2 "
Weight of rail per yard and description of rail: Steel, 25 lbs. ; iron, 34 lbs.	
Total length of railway, measured as single track, not including sidings, etc., operated by this com- pany	7 miles.
MILES RUN, ETC.	
Total number of miles run during the year	86,724 miles.
Total number of passengers carried in the cars	236,212
Total number of round trips for the year	7,093
Number of persons regularly employed by company	11
Rates of fare : 6, 12, and 17 cents.	

PROPER ADDRESS OF THE COMPANY:

CONCORD HORSE RAILROAD,

CONCORD, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Moses Humphrey, *President and Superintendent*; H. J. Crippen, *Treasurer*; E. C. Hoague, *Clerk of Corporation*, — all of Concord.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Moses Humphrey, Ames F. Holt, Geo. A. Cummings, Howard A. Dodge, and J. H. Albin, Concord, N. H.; Paul R. Holden, West Concord, N. H.; John C. Pearson, Boscawen, N. H.

MOSES HUMPHREY,
GEO. A. CUMMINGS,
J. H. ALBIN,
Directors.

H. J. CRIPPEN,
Treasurer.

MOSES HUMPHREY,
Superintendent.

STATE OF NEW HAMPSHIRE.

MERRIMACK, ss. January 22, 1887. Then personally appeared Moses Humphrey and H. J. Crippen, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

J. H. ALBIN, *Justice of the Peace.*

REPORT

OF THE

DOVER HORSE RAILWAY COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1886.

CAPITAL STOCK AND DEBT.		
CAPITAL STOCK.		
Capital stock authorized by charter .	\$50,000.00	
Capital stock authorized by votes of company	30,000.00	
Capital stock paid (par value of shares, \$50) .		\$19,450.00
Number of stockholders	126	
DEBT.		
Cost of road and equipment beyond amount of stock, paid from earnings of the road	\$984.43	
Unfunded debt, as follows:		
Dividend unpaid		\$60.00
Amount of cash assets, viz.:		796.53
Cash	\$776.53	
Supplies	20.00	
Net surplus		736.53
PERMANENT INVESTMENTS.		
RAILWAY.		
Grading and paving	}	\$13,185.42
Track, including timber, rails, etc., and laying		
Interest during construction, commissions, discounts, etc.		33.77
Engineering, agencies, salaries, and other expenses during construction		18.25
Total cost of construction		\$13,237.44

EQUIPMENT.	
Horses	\$2,562.00
Cars	3,280.75
Other articles of equipment	1,354.24
Total cost of equipment	\$7,196.99
Total amount of permanent investments	20,434.43
Cash assets	796.53
Total property and assets of company	21,230.96
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Property sold or reduced in valuation on the books:	
Expense for raising track	\$181.36
“ “ renewal of horses	315.00
Net addition to property for the year	\$496.36
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$5,392.24
Income from other sources:	121.00
Omnibus beyond track \$33.00	
Advertising in cars 88.00	
Total income from all sources	\$5,513.24
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$289.81
Repairs of cars and other vehicles, harness, and horseshoeing.	684.29
Renewal of horses	315.00
Wages and salaries of treasurer and superintendent	100.00
Wages and salaries of all other persons employed in operating the road	1,768.49
Provender	1,454.59
Rent paid for use of buildings	55.00
Insurance	20.00
Damages for injuries to persons and property	60.50
Office expenses and all other expenses not included above	135.14
Total expenses of operating	\$4,882.82
NET INCOME, DIVIDENDS, ETC.	
Total net income above operating expenses, in cash	\$630.42
Deduct decrease of amount of supplies on hand	105.00

Balance for the year, or surplus	\$525.42
Surplus at commencement of year . . . \$211.11	
Surplus at commencement of year as changed by aforesaid entries	211.11
Total surplus January 1, 1887	\$736.53

INVENTORY OF EQUIPMENT JANUARY 1, 1887.

Box cars	2
Open cars	2
Horses	14
Harnesses (pairs of)	7
Omnibuses	2
Sleighs	2
Other articles of equipment:	
Snow-plows	2
Work-wagon	1
Various articles of office and stable furnishings all same as last year.	
Largest number of horses owned at any time during the year	14
Smallest number of horses owned at any time dur- ing the year	14
Average number of horses owned during the year . .	14

General Balance-Sheet, January 1, 1887.

ASSETS.

Construction	\$13,237.44
Equipment	7,196.99
Cash and cash assets	796.53
Total assets	\$21,230.96

LIABILITIES.

Capital stock	\$19,450.00
Construction debt paid from earnings	984.43
Unfunded debt:	
Dividend unpaid	60.00
Surplus	736.53
Total liabilities	\$21,230.96

Copy of Profit and Loss Account for the Year Ending December 31, 1886.	
Dr.	
To expenses	\$4,882.82
supplies on hand January 1, 1886 . . . \$125.00	
" " " 1887 . . . 20.00	
Decrease in amount	105.00
Balance carried forward January 1, 1887 . . .	736.53
	<hr/> \$5,724.35
Cr.	
By balance January 1, 1886	\$211.11
total income	5,513.24
	<hr/> \$5,724.35
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	2.39 miles.
Aggregate length of switches, sidings, etc. . . .	.14 "
Total length of track measured as single track . .	2.53 "
[Weight of rail per yard, 30 lbs.]	
Description of the several lines or routes operated by the company:	
From Garrison Hill through Central avenue to Sawyer's Mills.	
Total length of railway, measured as single track, not including sidings, etc., operated by this com- pany	2.39 miles.
MILES RUN, ETC.	
Total number of miles run during the year . . .	43,000
Total number of passengers carried in the cars . .	108,000
Total number of round trips for the year . . .	9,000
Number of persons regularly employed by company	4
Rates of fare: 20 tickets for \$1.	
STATEMENT OF ACCIDENTS.	
All occasioned by running carriages against rail raised somewhat by reason of washing earth away.	

PROPER ADDRESS OF THE COMPANY:

DOVER HORSE RAILROAD,

DOVER, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Charles H. Sawyer, James E. Lothrop, Harrison Haley, Cyrus Littlefield, Frank B. Williams, Charles W. Wiggin, John Holland, Dover, N. H.

HARRISON HALEY,
CYRUS LITTLEFIELD,
JAMES E. LOTHROP,
CHARLES W. WIGGIN,

Directors.

STATE OF NEW HAMPSHIRE.

STRAFFORD, SS. January 17, 1887. Then personally appeared Harrison Haley, Cyrus Littlefield, James E. Lothrop, Charles W. Wiggin, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

T. J. SMITH, *Justice of the Peace.*

REPORT

OF THE

LACONIA & LAKE VILLAGE STREET RAILWAY COMPANY

FOR THE YEAR ENDING DECEMBER 31, 1886.

CAPITAL STOCK AND DEBT.		
CAPITAL STOCK.		
Capital stock authorized by charter	\$30,000.00	
Capital stock authorized by votes of company	15,000.00	
Capital stock paid (par value of shares, \$50)		\$15,000.00
Number of stockholders	41	
DEBT.		
Unfunded debt, as follows:		
Note payable	\$500.00	
Dividends unpaid	63.00	
Accounts payable	214.56	
		\$777.56
Total gross debt		\$15,777.56
Amount of cash assets, viz.:		
Cash	\$267.70	
Debit balances	51.40	
		319.10
Net debt		\$15,458.46
PERMANENT INVESTMENTS.		
RAILWAY.		
Grading and paving	}	\$10,210.00
Track, including timber, rails, etc., and laying		
Interest during construction, commissions, dis-		
counts, etc.		

Engineering, agencies, salaries, and other expenses during construction	\$240.00
Total cost of construction	\$10,450.00
EQUIPMENT.	
Horses	\$3,250.00
Cars	3,600.00
Other articles of equipment	2,100.00
Total cost of equipment	\$8,950.00
LAND AND BUILDINGS.	
Buildings owned by company needed in operating road	\$550.00
OTHER PROPERTY.	
Pigs	\$27.00
Total amount of permanent investments	19,977.00
Cash assets	319.10
Total property and assets of company	\$20,296.10
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
New horses (1)	\$205.00
Other equipment	329.50
Total addition to property	\$534.50
Property sold or reduced in valuation on the books:	
Depreciation of equipment	\$512.72
Building sold	30.00
	542.72
Net reduction of property for the year	8.22
REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$8,299.71
Total earnings	8,299.71
Income from other sources:	
Advertising	\$28.50
Earnings of barge and horses	156.15
Horse baiting	27.55
	212.20
Total income from all sources	\$8,511.91

EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.

Repairs of road-bed and track	\$65.78
Repairs of cars and other vehicles, harness, and horseshoeing	457.45
Wages and salaries of president, treasurer, and their clerks	75.00
Wages and salaries of all other persons employed in operating the road	2,941.56
Provender	2,137.95
Insurance	92.00
Damages for injuries to persons and property	737.07
Office expenses and all other expenses not included above	417.23
Total expenses of operating	\$6,924.04

NET INCOME, DIVIDENDS, ETC.

Total net income above operating expenses	\$1,587.87
Interest accrued during the year	64.26
Dividends declared (6 per cent for the year)	900.00
Balance for the year, or surplus	623.61
Surplus at commencement of year	\$4,407.65
Deduct depreciation	512.72
Surplus at commencement of year as changed by aforesaid entries	3,894.93
Total surplus December 31, 1886	4,518.54

INVENTORY OF EQUIPMENT.

Box cars	3
Open cars	2
Horses	20
Harnesses (pairs of)	6
Sleighs	4
Other articles of equipment:	
Barges	2
Wagon, tip-cart, platform-car, and snow-plow.	
Largest number of horses owned at any time during the year	20
Smallest number of horses owned at any time during the year	16
Average number of horses owned during the year	18

General Balance-Sheet, December 31, 1886.

ASSETS.

Construction	\$10,450.00
Equipment	8,950.00

Land and buildings	\$550.00
Other property	27.00
Cash and cash assets	319.10
Total assets	\$20,296.10
LIABILITIES.	
Capital stock	\$15,000.00
Unfunded debt	777.56
Surplus	4,518.54
Total liabilities	\$20,296.10
Copy of Profit and Loss Account for the Year Ending December 31, 1886.	
DR.	
To expenses	\$6,924.04
interest	64.26
dividends	900.00
depreciation	512.72
balance carried forward December 31, 1886	4,518.54
	\$12,919.56
CR.	
By balance January 1, 1886	\$4,407.65
total income	8,511.91
	\$12,919.56
DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as single track, exclusive of sidings	2.136 miles.
Aggregate length of switches, sidings, etc. . . . .	.111 "
Total length of track, measured as single track	2.247 "
Total length of track paved	About 30 rods.
Weight of rail per yard and description of rail: Street, 34 lbs. ; T, 25 lbs.	
Total length of railway, measured as single track, not including sidings, etc., operated by this com- pany	2.136 miles.
MILES RUN, ETC.	
Total number of miles run during the year	39,584
Total number of passengers carried in the cars	158,766
Total number of round trips for the year	9,671

Number of persons regularly employed by the company	5
Rates of fare (5 tickets for 25 cents; 25 operatives' tickets for \$1.00)	6 cents.

PROPER ADDRESS OF THE COMPANY:

LACONIA & LAKE VILLAGE HORSE RAILROAD,
LACONIA, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Albert G. Folsom, *President*; Edmund Little, *Treasurer*; Jotham P. Hutchinson, *Clerk of Corporation*, — all of Laconia.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Albert G. Folsom, Charles A. Busiel, and Sylvester S. Wiggin, Laconia, N. H.; Samuel C. Clark, Lake Village, N. H.; Jotham P. Hutchinson, Samuel B. Smith, and Daniel A. Tilton, Laconia, N. H.

ALBERT G. FOLSOM,
C. A. BUSIEL,
S. S. WIGGIN,
S. C. CLARK,
S. B. SMITH,

Directors.

EDMUND LITTLE,
Treasurer.

STATE OF NEW HAMPSHIRE.

BELKNAP, SS. January 8, 1887. Then personally appeared Albert G. Folsom, C. A. Busiel, S. S. Wiggin, S. C. Clark, S. B. Smith, and Edmund Little, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

GEORGE A. HATCH, *Justice of the Peace.*

REPORT

OF THE

MANCHESTER STREET RAILWAY COMPANY

FOR THE YEAR ENDING SEPTEMBER 30, 1886.

CAPITAL STOCK.	
Capital stock authorized by charter	\$25,000.00
Capital stock authorized by votes of company	25,000.00
Capital stock paid (par value of shares, \$100)	\$25,000.00
Number of stockholders	17
PERMANENT INVESTMENTS.	
EQUIPMENT.	
Horses	60
Cars	14
Other articles of equipment: snow-plow and sleds	
LAND AND BUILDINGS.	
Land owned by company needed in operating road	10 acres.
Buildings owned by company needed in operating road	Stable and lot.
Total amount of permanent investments	\$25,000.00
Cash assets	659.84
Total property and assets of company	\$25,659.84
PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.	
Extension of tracks	5,800 feet.
New horses	16
New cars	2

REVENUE FOR THE YEAR.	
Received from passengers on railways operated by this company	\$28,099.68
Received from sales of manure	321.50
Total earnings	\$28,421.18
Income from other sources:	
Interest	\$100.00
Rents	661.28
Horses	520.00
Material sold	216.14
	1,497.42
Total income from all sources	\$29,918.60
EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.	
Repairs of road-bed and track	\$3,210.32
Repairs of cars and other vehicles, harness, and horseshoeing	4,337.54
Repairs on buildings	285.44
Renewal of horses	2,763.00
Wages and salaries of president, treasurer, superintendent, and their clerks	1,216.00
Wages and salaries of all other persons employed in operating the road	8,595.26
Provender	7,599.71
Taxes, state and local	75.43
Insurance	338.62
Office expenses, and all other expenses not included above	679.16
Total expenses of operating	\$29,100.48
NET INCOME, DIVIDENDS, ETC.	
Total net income above operating expenses	\$818.12
Interest accrued during the year	100.00
Two dividends declared (6 per cent for the year)	3,000.00
Surplus at commencement of year	841.72
Total surplus September 30, 1886	659.84
INVENTORY OF EQUIPMENT.	
Box cars	9
Open cars	5
Horses	60
Harnesses (pairs of)	18
Other articles of equipment: wagon, cart, and two sleds.	

Largest number of horses owned at any time during the year	60
Smallest number of horses owned at any time during the year	58
Average number of horses owned during the year	59
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General Balance-Sheet, October 1, 1886.	
ASSETS.	
Construction }	\$25,000.00
Equipment }	
Land and buildings }	
Other property }	
Cash and cash assets	659.84
Total assets	\$25,659.84
LIABILITIES.	
Capital stock	\$25,000.00
Surplus	659.84
Total liabilities	\$25,659.84
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Copy of Profit and Loss Account for the Year Ending September 30, 1886.	
DR.	
To expenses	\$29,100.48
two dividends (6 per cent each)	3,000.00
balance carried forward September 30, 1886	659.84
	\$32,760.32
CR.	
By balance September 30, 1885	\$841.72
total income	29,918.60
note due September 30, 1886	2,000.00
	\$32,760.32
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DESCRIPTION OF RAILWAY.	
Length of railway owned by company, measured as a single track, exclusive of sidings	5½ miles.
Total length of track, measured as single track	5½ "

Total length of track paved	5½ miles.
Weight of rail per yard and description of rail: flat street rail ; 27 and 34 lbs.	
MILES RUN, ETC.	
Total number of miles run during the year . . .	179,215
“ “ passengers carried in the cars . . .	602,910
“ “ round trips for the year . . .	59,590
Number of persons regularly employed by company . . .	17
Rates of fare	5 cents.

PROPER ADDRESS OF THE COMPANY:

MANCHESTER HORSE RAILROAD,

MANCHESTER, N. H.

NAMES AND RESIDENCES OF OFFICERS.

Samuel N. Bell, *President*, Manchester, N. H. ; A. Quincy Gage, *Superintendent*, Manchester, N. H. ; Frederick Smyth, *Treasurer*, Manchester, N. H. ; James A. Weston, *Clerk of Corporation*, Manchester, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

Samuel N. Bell, Frederick Smyth, James A. Weston, Josiah Carpenter, Manchester, N. H.

S. N. BELL,
 JOSIAH CARPENTER,
 JAMES A. WESTON,
 FREDERICK SMYTH,
Directors.
 FREDERICK SMYTH,
Treasurer.
 A. QUINCY GAGE,
Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. December 30, 1886. Then personally appeared S. N. Bell, Josiah Carpenter, James A. Weston, Frederick Smyth, and A. Quincy Gage, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

CHARLES F. MORRILL,
Justice of the Peace.

REPORT

OF THE

NASHUA STREET RAILWAY COMPANY

FOR THE 138 DAYS ENDING SEPTEMBER 30, 1886.

CAPITAL STOCK AND DEBT.	
CAPITAL STOCK.	
Capital stock authorized by charter	\$50,000.00
Capital stock authorized by votes of company \$20,000.00	
Capital stock paid (par value of shares, \$50)	20,000.00
Number of stockholders 96	
DEBT.	
Amount of cash assets	\$773.21
PERMANENT INVESTMENTS.	
RAILWAY.	
Total cost of construction	\$10,097.68
EQUIPMENT.	
Horses	\$3,285.00
Cars	3,140.30
Other articles of equipment, supplies, etc.	1,000.00
LAND AND BUILDINGS.	
Land owned by company needed in operating road	\$1,350.62
Buildings owned by company needed in operating road	3,235.37
Total amount of permanent investments	22,882.18
Cash assets	773.21

PROPERTY ACCOUNTS: CHARGES AND CREDITS DURING THE YEAR.

Property sold or reduced in valuation on the books:

Supplies and small articles of equipment	\$1,000.00
Cars	140.30
Buildings	235.37
Land	350.62
Cost of road	97.68
Horses	285.00

Total	\$2,108.97
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REVENUE FOR THE YEAR.

Received from passengers on railways operated by this company	\$6,114.18
Received from sales of manure	27.50
Income from other sources :	1.60
Old wood . . . . .	.25
Oats	\$1.35
Total income from all sources	\$6,143.28

EXPENSES OF OPERATING THE RAILWAY FOR THE YEAR.

Repairs of cars and other vehicles, harness, and horseshoeing	\$313.08
Repairs on buildings	44.35
Wages and salaries of president, treasurer, superintendent, and their clerks	272.00
Wages and salaries of all other persons employed in operating the road	1,422.33
Provender	1,131.96
Water	\$25.00
Gas	9.88
Insurance	34.88
	42.50
Total expenses of operating	\$3,261.10

NET INCOME, DIVIDENDS, ETC.

Total net income above operating expenses . . .	\$2,882.18
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INVENTORY OF EQUIPMENT.

Box cars	3
Open cars	2
Horses	22
Harnesses (pairs of)	6

Largest number of horses owned at any time during the year	22
Smallest number of horses owned at any time during the year	22
Average number of horses owned during the year	22

General Balance-Sheet, September 30, 1886.

ASSETS.

Construction	\$10,000.00
Equipment	6,000.00
Land and buildings	4,000.00
Cash and cash assets	773.21
Total assets	\$20,773.21

LIABILITIES.

Capital stock	\$20,000.00
Surplus	773.21
Total liabilities	\$20,773.21

Copy of Profit and Loss Account for the 138 Days Ending September 30, 1886.

DR.

To expenses	\$5,370.07
balance carried forward September 30, 1886	773.21
	\$6,143.28

CR.

By total income	\$6,143.28
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DESCRIPTION OF RAILWAY.

Length of railway owned by company, measured as a single track, exclusive of sidings	2 miles.
Aggregate length of switches, sidings, etc.	380 feet.
Total length of track paved	1½ miles.
[Weight of rail per yard, 35 lbs.]	
Total length of railway, measured as single track, not including sidings, etc., operated by this company	2 miles.

MILES RUN, ETC.	
Total number of miles run during the 138 days .	24,120
Total number of passengers carried in the cars .	122,283
Total number of round trips for the 138 days .	6,030
Number of persons regularly employed by company	8
Rates of fare	5 cents.

PROPER ADDRESS OF THE COMPANY:

NASHUA STREET RAILWAY,
NASHUA, N. H.

NAMES AND RESIDENCES OF OFFICERS.

J. A. Spalding, *President*, Nashua, N. H.; Q. A. Woodward, *Superintendent*, Nashua, N. H.; Ira F. Harris, *Treasurer*, Nashua, N. H.; R. D. Barnes, *Clerk of Corporation*, Nashua, N. H.

NAMES AND RESIDENCES OF DIRECTORS LAST ELECTED.

J. A. Spalding, Q. A. Woodward, Henry Stearns, R. D. Barnes, and C. H. Burke, Nashua, N. H.; R. A. Maxfield, Lowell, Mass.; Charles Williams, Manchester, N. H.

J. A. SPALDING,
HENRY STEARNS,
Q. A. WOODWARD,
ROYAL D. BARNES,
CHARLES H. BURKE,
Directors.
IRA F. HARRIS,
Treasurer.
Q. A. WOODWARD,
Superintendent.

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH, ss. December 24, 1886. Then personally appeared John A. Spalding, Henry Stearns, Q. A. Woodward, Royal D. Barnes, and Charles H. Burke, directors, and Ira F. Harris, treasurer, and Q. A. Woodward, superintendent, and severally made oath to the truth of the foregoing statement by them subscribed, according to their best knowledge and belief.

LYMAN D. COOK,
Justice of the Peace.

APPENDIX.

RAILROAD LAWS OF NEW HAMPSHIRE.

FROM THE GENERAL LAWS.

CHAPTER 158.

RAILROAD CORPORATIONS.

SECTION

1. Powers of railroad corporations.
2. Bound by all laws.
3. May purchase real estate, when.
4. Bonds sold at a discount not affected by usury.
5. To keep accounts of receipts and expenditures.
6. Assistant treasurers of railroads, when appointed; dividends and attachments.
7. When such treasurers not appointed.

SECTION

8. Railroads prohibited from increasing their capital.
9. Issuing certificates of stock prohibited, when.
10. Penalty for violation.
11. Rival and competing roads to be run separately.
12. Rival roads and their officers not to control competing roads.
13. Provision applies to rival roads only.

SECTION 1. Corporations established by law for the construction and maintenance of railroads have the general powers given by law to other corporations, and those granted by their charters so far as they have not been subsequently changed by law.

SECT. 2. Such corporations are bound by all the laws of the State affecting the proprietors of railroads.

SECT. 3. Any railroad corporation may purchase, hold, and convey real estate lying near to or adjoining their road, not exceeding in value five per cent of its capital stock.

SECT. 4. No railroad corporation shall be exonerated from the payment of any bond or obligation issued by the directors in pursuance of authority given at any legal meeting, by reason of any

discount made to the purchaser thereof in accordance with the unanimous vote of the corporation.

SECT. 5. Every railroad corporation shall keep exact accounts of its receipts and expenditures; and in every year when its net receipts exceed the average of ten per cent on its expenditures from the commencement of its operations, the excess shall be paid into the treasury of the State, until otherwise directed by the Legislature.

SECT. 6. Every railroad corporation not having its treasurer resident in this State, and keeping his office therein, shall appoint an assistant treasurer, who shall reside in this State, and keep his office at the principal place of business of such corporation therein. All dividends due to stockholders resident in this State, of any railroad wholly or partially in this State, shall be payable at the office of the treasurer or assistant treasurer in this State, unless otherwise requested by them; and attachments of stock shall be made by leaving copies at the same office, and transfers shall be there filed; and such attachments and transfers shall have priority according to priority of filing in the office of either of said officers.

SECT. 7. The provisions of the preceding section shall not apply to any railroad corporation existing in any other State, but owning and operating a portion of its road in this State, unless that portion of its road in this State is represented by capital stock made and issued under the authority of this State.

SECT. 8. No railroad corporation shall increase the amount of its capital stock without the consent of the Legislature first had and obtained, and any officer thereof who shall aid and abet therein shall be punished by a fine not exceeding twenty thousand dollars, and by imprisonment not exceeding two years.

SECT. 9. No certificate of shares in the capital stock of any railroad corporation shall be issued after the number of shares specifically limited in and by the charter of such railroad shall have been issued at the par value thereof limited in said charter, unless such issue beyond the number so limited shall have been authorized by enactment of the Legislature subsequent to the charter, and previous to such issue; and all provisions contained in railroad charters authorizing an increase of the capital stock of said railroads, respectively, beyond the number of shares specifically limited therein, shall be void and of no effect as to any increase of capital hereafter made.

SECT. 10. If any president, treasurer, or other officer of a railroad corporation shall issue a certificate of any share or shares in the capital stock of said corporation contrary to the provisions of the preceding section of this act, he shall be imprisoned not exceed-

ing one year and fined not exceeding five hundred dollars, or be imprisoned not exceeding three years; and any such certificate, so issued by the president, treasurer, or other officer of said corporation, shall be void.

SECT. 11. Two or more railroad corporations, chartered by the Legislature of this State, constituting the whole or part of different lines of route for public travel and transportation between any two cities or towns, or between any city and town, either within or without this State, forming rival and competing lines of route between such points, shall not be allowed to consolidate such roads or lines; and neither of said lines, or any road or roads composing the same, shall be run or operated by any such rival and competing line, or any road or roads, portion thereof, under any business contract, lease, or other arrangement, but each and every railroad corporation so situated shall be run, managed, and operated separately by its own officers and agents, and be dependent for its support on its own earnings from its local and through business in connection with other roads, and the facilities and accommodations it shall afford the public for travel and transportation under fair and open competition, unless such lease, contract, or arrangement be first authorized by the Legislature and approved by the Governor and Council.

SECT. 12. In all cases where any road, its directors, officers, or agents, shall hereafter enforce, or attempt to enforce, or exercise any authority over any other road, situated as is provided in the preceding section, or do any act in conflict with said section, such officers or agents shall severally be subject to a fine or liability not exceeding five hundred dollars for each offence, to be recovered by action of debt, or by information or indictment, for the use of the county within which said suit shall be instituted. And it shall be further lawful for any citizen to apply to the supreme court, or to any one or more of the justices thereof, not interested in said road or roads, whose duty it shall be to issue an injunction to restrain, under heavy liabilities and penalties, any board of directors, its officers or agents, or either of them, from attempting to interfere with or control in any way or manner the operation, management, or direction of such road or roads, or violate any of the provisions of said section; and said directors, officers, and agents shall be liable on such application to examination, under oath, touching any infringement of the provisions of said section, and be subject to all expense of every kind whatsoever necessarily incurred in enforcing the same.

SECT. 13. The two preceding sections shall apply solely to the operation and control of any roads by rival lines, or parts thereof, and not to contracts or leases for the running and operation of any

road constructed as an extension or continuation of a separate and independent line, or as parts and parcels of the same, or to any side branches tributary or secondary to such line, all which are specially exempted from the provisions of said section.

CHAPTER 159.

PROPRIETORS OF RAILROADS.

SECTION

1. Proprietors of railroads, who are.
2. Sale of railroads, lease, etc., when valid.
3. Proprietors to conform to laws.
4. To transport soldiers, etc., for State.
5. To transport soldiers, etc., for United States.

SECTION

6. To keep full records and accounts.
7. To make annual reports; form of.
8. To report exclusive contracts.
9. Tolls may be altered by Legislature.
10. Penalty for offences by proprietors.
11. For offences by agents.

SECTION 1. The term proprietors of a railroad shall include the corporation to which any railroad was originally granted, or into whose hands it has subsequently passed, the assignees or trustees to whom any railroad has been mortgaged for the security of debts, and any company or persons to whom it may have been conveyed.

SECT. 2. No sale, lease, mortgage, or contract for the use of any railroad shall be valid unless it shall be in writing, filed in the office of the secretary of state, and authorized by the Legislature.

SECT. 3. The proprietors of every railroad shall in all things conform to the requirements of the laws, shall not discontinue their road, nor any part of it, shall keep it all in good repair, and discharge their duties in carrying passengers and freight agreeably to the proper object and purpose of such railroad.

SECT. 4. Such proprietors shall, in time of war, insurrection, or invasion, transport soldiers, munitions of war, and other property of the State over such roads, when required by its officers and agents, at such rates as the Governor and Council shall impose, if the parties do not agree.

SECT. 5. They shall transport soldiers, munitions of war, and other property of the United States, and the mails of the United States, when required by the proper officers and agents, at such rates as the Governor and Council shall impose, if the parties do not agree, and the United States shall submit the matter to their decision.

SECT. 6. All proprietors of railroads shall keep a full record of

all their doings, and exact accounts of all their receipts and expenditures, and, when required, submit all their accounts, records, papers, and files to the inspection of the Legislature, its committees, and the railroad commissioners.

SECT. 7. The proprietors of every railroad shall, in the month of May, annually, make report to the Governor and Council, under oath of their treasurer and superintendent, or of the persons who shall discharge the duties of those officers, of their acts and doings, receipts and expenditures; and such report shall contain full information upon the several items here enumerated, namely:

REPORT OF THE RAILROAD, UNDER CHAPTER 159 OF THE GENERAL LAWS.

CAPITAL STOCK AND DEBTS.

Capital stock,
Capital paid in,
Funded debt,
Floating debt,
Total present amount of funded and floating debt,
Amount of debts secured by mortgage of road and franchise, or any property of the corporation,
Number of mortgages on road and franchise, or any property of the corporation,
Average rate of interest per annum during the year,

COST OF ROAD AND EQUIPMENT.

For grading and masonry,
For wooden bridges,
For superstructure, including iron,
For stations, buildings, and fixtures,
For land, land damages, and fences,
For locomotives,
For passenger and baggage cars,
For merchandise cars,
For agencies, engineering, and miscellaneous expenses,
Total cost of road and equipment,
Assets held by the corporation in addition to cost of the road,

CHARACTERISTICS OF THE ROAD.

Length of road,
Length of single main track,

Length of double main track,
Aggregate length of sidings and other tracks, excepting main tracks,
Weight of rail per yard,
Maximum grade, with its length,
Average grade per mile of road,
Shortest radius of curvature, with length of same,
Total degree of curvature,
Total length of straight line,
Aggregate length of wooden truss bridges under track,
Aggregate length of all other wooden bridges under track,
Aggregate length of iron bridges under track,
Aggregate length of stone bridges under track,
Whole length of road unfenced,
Number of way stations,
Number of railroads crossed at grade,
Number of public ways crossed at grade,

DOINGS FOR THE YEAR.

Miles run by passenger trains,
Miles run by freight trains,
Miles run by other trains,
Total miles run,
Number of passengers carried in the cars,
Number of passengers carried one mile,
Number of tons of merchandise carried in the cars,
Number of tons of merchandise carried one mile,
Rate of speed adopted for passenger trains,
Rate of speed adopted for freight trains,
Estimated weight in tons of passenger cars, not including passengers, hauled one mile,
Estimated weight in tons of merchandise cars, not including freight, hauled one mile,

EXPENDITURES FOR WORKING THE ROAD.

For repairs of roads, exclusive of renewals of iron,
For renewals of iron, including laying down,
For repairing gates, fences, and houses,
For taxes and insurance,
For removing ice and snow,
For fuel, stating number of cords of wood and tons of coal used,
For oil,

For waste and other material for cleaning,
For repairs of locomotives,
For new locomotives to cover depreciation,
For repairs of passenger cars,
For new passenger cars to cover depreciation,
For repairs of merchandise cars,
For new merchandise cars to cover depreciation,
For wages of freightmen,
For wages of stationmen,
For wages of switchmen and gatemen,
For wages of conductors and brakemen,
For wages of enginemen and firemen,
For wages of watchmen,
For salaries of president, treasurer, superintendent, and corporation clerk,
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, and the amount to each,
For amount paid other companies as rent for use of their roads, specifying each company, and the amount to each,
For all other expenses not included in the foregoing items,
Total expenditures for working the road,

INCOME FOR THE YEAR.

From passengers,
From freight,
From mails,
From expresses,
Interest,
From all other sources,
Total income,
Net earnings after deducting expenses,

DIVIDENDS.

Per cent total on stock,
Per cent interest on debt (if any),
Surplus not divided,
Surplus last year,
Total surplus,

MISCELLANEOUS.

Number of persons employed on the road,
Number of legal counsel retained, and amount paid them,
Number of actions in court each year in which the corporation is a party, the expense of each action, the nature of the controversy, and the amount in question,
Number of free passengers carried during the year, not including persons engaged in the immediate working of the road, or stockholders attending meetings of the corporation,
Number of engines owned or used by the company,
Number of passenger cars,
Number of merchandise cars,
Number of gravel cars,

SECT. 8. In said annual report they shall state whether said proprietors have granted or secured, by contract or otherwise, any exclusive privileges to any person to use the land or right of way of said railroad for any purpose, and what; and all contracts, grants, and exclusive privileges shall be void unless approved by the Legislature.

SECT. 9. When the net income of any railroad shall exceed ten per cent upon its stock, the Legislature may alter and revise the rates of toll for freight and passengers as they may deem just.

SECT. 10. If the proprietors of any railroad shall violate the provisions of any statute, and no mode of punishment is provided therefor, they may be fined not exceeding one thousand dollars for each offence, and shall be liable to any person injured, in an action upon the case, for any damage by him sustained.

SECT. 11. If any proprietor, officer, agent, or servant of the proprietors of any railroad shall knowingly violate the provisions of any statute, where no other remedy is provided, he may be fined for each such offence not exceeding one hundred dollars.

CHAPTER 160.

LAYING OUT RAILROADS.

SECTION

1. Railroads are public.
2. Railroad corporations are public.
3. Railroads built only by grant of the Legislature.
4. Routes to be surveyed and roads laid out by proprietors; may be laid out in parts, etc.
5. Grantees may make surveys.
6. Location by permanent monuments.
7. Land taken, how described.
8. Railroad commissioners locate, when.
9. Grantees may take deeds or bonds.
10. May apply for appraisal of damages.
11. Owner of land may apply for change of location.
12. Notice to land-holders to be given.
13. Notice to proprietors of railroad.
14. Selectmen to be notified and join in the appraisal.
15. Notice of commencement and distance sufficient.
16. Appraisal, how made and reported.
17. Either party may appeal; proceedings thereon.

SECTION

18. Location changed on petition of the proprietors.
19. Rights of parties; new location a discontinuance of the old.
20. Damages to be paid before entry.
21. Damages, how paid if owner unknown.
22. Security for damages and costs, when.
23. No action before entry, nor after location changed.
24. Branch railroads by permission of the selectmen.
25. No title by adverse possession by or against railroads.
26. Return of damages to town clerk, when appeal entered.
27. Land may be appraised and set off after road built.
28. When commissioners and selectmen cannot agree, damages, how assessed.
29. May take land for side tracks, depots, shops, etc., same as for track.
30. May take earth and gravel, etc.

SECTION 1. Railroads, being designed for the public accommodation, like other highways are public, and at all times subject to the control of the Legislature.

SECT. 2. All railroad corporations are public, and trustees and others in whom any railroad is vested are public agents, so far as the security and protection of the public rights and interests are concerned.

SECT. 3. Railroads, being public highways, can be laid out, built, maintained, and put in operation only by virtue of express grants of the Legislature, or of authority derived from them.

SECT. 4. The funds for the construction of railroads being derived mainly from the proprietors, and the profits derived from the tolls and income thereof being payable to them, their routes shall be surveyed and the roads laid out, in the first instance, by their agents. Any railroad may be laid out at one time through its entire course,

or at different and successive times in such parts as shall be deemed conducive to the interests of all concerned.

SECT. 5. A railroad being authorized by grant of the Legislature, the grantees, by their agents and engineers, may enter upon any land which falls within their route, and make such surveys as they deem necessary.

SECT. 6. They shall locate the route for their railroad where they deem it most suitable, establishing at convenient distances, not exceeding one mile apart, permanent monuments easily ascertained, and make a return of their location with reference to said monuments to the office of the secretary of state.

SECT. 7. Such return shall describe the location of their road by course and distance, with reference to such monuments, the width of the land located, the quantity of land of each owner proposed to be taken, and the name of the owner, if known.

SECT. 8. If stockholders of the railroad corporation, holding one tenth of the capital stock thereof, are dissatisfied with the location, they may apply by petition to the railroad commissioners for a change of the same; and they shall give notice to the corporation and all others interested by publication, and, after due hearing and examination, shall make such changes in the location as they deem the public interest to require.

SECT. 9. The grantees of such railroad, either before or after such location, may obtain deeds, or bonds for deeds, of any lands which they deem necessary for their road, or of the right of way over the same.

SECT. 10. If from any cause they cannot or do not obtain such deeds, they may apply by petition to the railroad commissioners to appraise the damages to the owners of such lands occasioned by such railroad.

SECT. 11. Any owner of land over which such railroad is located, who is aggrieved by such location, may, at any time before his damages are assessed, present his petition to the railroad commissioners, praying for a change of the location of such railroad.

SECT. 12. The railroad commissioners shall give such notice of a hearing, upon any application by the proprietors of the railroad for an assessment of damages, to the several owners and parties interested in the land over which said railroad is located, as county commissioners are required to give of hearings upon petitions for highways referred to them.

SECT. 13. They shall give like notice of a hearing, upon the application of a land-owner for a change of location, to the railroad proprietors and others interested. No appraisal of damages shall be

made after such petition is filed till the question of change of location is decided.

SECT. 14. The railroad commissioners shall give notice of any hearing for the appraisal of damages to the selectmen of the town in which the land lies; and the railroad commissioners and said selectmen being met, shall constitute a joint board for such appraisal.

SECT. 15. Notice of the time and place of the commencement of any such hearing, and of the distance to be examined, shall in all cases be sufficient.

SECT. 16. Said commissioners shall examine the place, hear the parties, and make report of their proceedings, in the same manner as county commissioners are required to do in the case of highways.

SECT. 17. Such report shall be final, unless either party aggrieved shall appeal therefrom within thirty days after notice thereof, upon which appeal the same proceedings shall be had as on appeal from an award of damages by the county commissioners.

SECT. 18. The location of any railroad may be changed, on petition of the proprietors, by the railroad commissioners, after notice to all persons interested, as well upon the existing as the proposed location, a hearing, and an award of damages to persons injured by such change.

SECT. 19. The rights of all parties shall be the same in such case as on the original appraisal, and the change of location shall be a discontinuance of the part so changed; but the proprietors may be allowed by the commissioners a limited time to remove their fixtures therefrom.

SECT. 20. Damages awarded to any land-owner shall be paid or tendered him, if known and resident in the State, before the proprietors shall enter on his land to make their road, except by his consent.

SECT. 21. If the owner or his residence is unknown, or if he is a minor and has no guardian, or is not resident in the State, the damages awarded shall be paid to the state treasurer for his use before the land can be rightfully entered upon.

SECT. 22. If an appeal is taken from the award of damages, the proprietors may enter upon and use the land, upon payment of the damages awarded to the owner, or, on his refusal of the same, to the state treasurer, and filing in his office reasonable security to the satisfaction of either of the county commissioners for the payment of any further damages and cost which may be awarded to the land-owner upon said appeal.

SECT. 23. No action shall be brought for damages before entry upon the land; and if the location of the road shall be changed

before the land is entered upon for the purpose of building the road, no damages shall be paid.

SECT. 24. Branch railroads, for the purpose of obtaining gravel, timber, or other material for the railroad, or for the accommodation of individuals, may be constructed and maintained across any highway by the permission of the selectmen, if the same does not obstruct the public travel.

SECT. 25. No title to any real estate or interest therein shall be acquired by or against the proprietors of any railroad by any adverse possession, however exclusive or long continued.

SECT. 26. The railroad commissioners shall certify the damages awarded to land-owners in each town by them, separately or in connection with the selectmen, to the town clerk of such town, within ten days after the making thereof; and the clerk shall note thereon the date of its receipt, and keep it on file, and any appeal may be entered at the court holden next after the expiration of thirty days therefrom.

SECT. 27. If land occupied by a railroad was not laid out and the damages appraised at the time of its construction, the road shall not be obstructed, but the land may be set off and the damages appraised as should have been done originally; and the costs of the proceedings shall be assessed by the railroad commissioners, and paid by the proprietors of the railroad.

SECT. 28. Whenever upon a hearing before the railroad commissioners and the selectmen of any town, upon an application for the assessment of damages for land taken in such town, commissioners and selectmen, as a joint board, are or have been unable to agree upon the amount of damages to be awarded to the owner of any land in such town, included in the location of such railroad, and shall have made report of their proceedings as required by law, the supreme court for the county, or any disinterested justice of said court in vacation, on the application in writing of such railroad or land-owner, shall appoint three disinterested men, resident of the county, who shall, after due notice to and hearing of the parties, appraise the damage to such land-owner for the land taken for such railroad in the same manner and with the same proceedings as are now provided by law for such assessment.

SECT. 29. Any railroad corporation may take and hold such land as may be necessary for side tracks, wood-sheds, repair-shops, engine, car, and freight houses, turn-tables, and depot purposes, and shall file a location of the same, as now provided by law for the location of railroads; and the damages for the same, in case the parties do not agree, may be assessed in the same manner as now provided by

law for land taken for such railroads; *provided*, that a copy of the location so made shall be given to the owner if known and resident in this State, and if such owner is unknown or resides without the State, that a like copy shall be published in some newspaper published in the county where the land so located is situated, at least twelve days before application shall be made to assess the damages for such land; and if any such owner is dissatisfied with such location, either party may apply to the railroad commissioners, who, after due notice to all parties interested, may change such location as justice may require, and shall file the location by them made in the office of the secretary of state.

SECT. 30. Any railroad corporation may, in like manner, take and hold earth and gravel contiguous to the line of said railroad, necessary for repairing, securing, or ballasting its road; *provided*, that in their certificate of location thereof they shall specify the depth to which they propose to grade the same; and in case they are unable to agree with the owner in relation thereto, the railroad commissioners shall state in their certificate of location the depth to which such material may be removed.

CHAPTER 161.

CROSSINGS, STATIONS, AND PASSES.

SECTION

1. Proprietors to provide crossings, etc.
2. Passes for highways, when to be built.
3. Towns may require bridges, etc.
4. Penalty for neglect.
5. Proprietors may apply to supreme court for decision.
6. County commissioners to hear and report.
7. Court to make order.
8. Proprietors may petition court for leave to construct bridge, etc.
9. County commissioners may set off land.
10. Damages assessed to owners injured.

SECTION

11. Appeal from assessment of damages.
12. Judgment on report and execution.
13. On non-compliance, fine, and injunction.
14. Depots established on like proceedings.
15. Penalty for neglect.
16. County commissioners to hear and decide on passes.
17. Penalty for not making passes.
18. Proprietors liable for incidental damages.
19. County commissioners to hear and award damages.
20. On compliance, liability of railroad ceases.

SECTION 1. Railroads having for their principal object the public accommodation, the proprietors thereof shall be bound to provide

crossings, stations, and other facilities for the public, and to make gates, crossings, cattle-passes, and other facilities for owners of land divided thereby or separated from any highway.

SECT. 2. If the track of any railroad is nine feet or more above any highway crossed by it as it was used when the railway was located, the proprietors thereof, within four months after notice by the selectmen, shall construct and afterward maintain a suitable pass for said highway under their track, at least ten feet in height above the traveled path and below the lower part of the timbers supporting the railway, and on failure so to do shall forfeit one hundred dollars for each month's neglect, for the use of the town.

SECT. 3. Any town, in any other case, may, by vote, require the proprietors of any railroad to secure the crossing of any highway by said railroad, by a bridge, or a pass under said way, or by gates on both sides of said railroad.

SECT. 4. If the proprietors of said railroad shall not construct such bridge, pass, or gates to the satisfaction of the selectmen, within six months after notice of said vote, they shall forfeit one hundred dollars for each month's neglect, unless they shall make application to the supreme court for a decision as hereinafter provided.

SECT. 5. The proprietors of such railroad, within thirty days after notice of such vote, may apply by petition to the supreme court for an examination of the crossing and a decision as to the propriety of such change; and notice thereof being given to the town, the petition may be referred to the county commissioners.

SECT. 6. The county commissioners, after notice, examination, and hearing, as required in case of highways, shall report whether the gates, pass, or bridge required by the town is necessary, and, if not, what is necessary to be done for the public security.

SECT. 7. Upon such report the court shall make such order as to such crossing as they may deem necessary.

SECT. 8. Whenever the proprietors of any railroad deem it necessary for the public safety that an intersection of their road with a highway shall be secured by a bridge, gates, or a pass, they may petition the supreme court for authority to construct the same; and thereupon the same proceedings shall be had as provided in the preceding sections.

SECT. 9. If the land of any person is alleged to be necessary for the construction of any pass or bridge, notice of such hearing shall be given to the owner thereof by the commissioners, and, after hearing, they may set off so much of said land as they deem necessary, and appraise the damages; upon payment or tender of which the proprietors of the railroad may use said land for that purpose.

SECT. 10. Upon application of any owner of land who has sustained damage by the erection of any such gate, pass, or bridge, his damages may be assessed in the manner provided in the preceding section.

SECT. 11. Any party dissatisfied with the damages awarded by the county commissioners may have his damages assessed by a jury, upon appeal, as in the case of highways.

SECT. 12. Upon every report of the commissioners, the court may render such judgment as the case may require, and in proper cases issue execution for any damages and costs by them adjudged.

SECT. 13. If the proprietors of such railroad do not comply with such order they may be fined not exceeding one thousand dollars, and may be restrained from using said road, by injunction, till the order is complied with.

SECT. 14. If the proprietors of any railroad shall not, upon request, establish proper stopping-places and depots for the public accommodation, they may, upon such proceedings as are before prescribed in the case of passes and bridges, be required to establish such depots.

SECT. 15. If the proprietors of the railroad shall not erect such depot and furnish such accommodations within such time, and make such stops, as the court have ordered, they shall forfeit one hundred dollars for each month's neglect.

SECT. 16. If the owner of land and the proprietors of any railroad are not agreed upon the place, number, or kind of cattle-guards, passes, or crossings to be constructed for his accommodation, either party may apply to the county commissioners, who, after notice, hearing, and examination, shall determine the number, places, time, and manner of construction of the same; and their report, filed with the clerk of the supreme court for the county, shall be conclusive.

SECT. 17. If the proprietors of such railroad do not construct such cattle-guards, passes, and crossings within the times limited by said commissioners, and pay any costs adjudged to be paid by them upon request, they shall forfeit twenty-five dollars for each month's neglect.

SECT. 18. The proprietors of every railroad shall be liable for all damages done to the owner of any property upon or near said railroad, in constructing or maintaining their railroad, or in altering any highway, turnpike, bridge, or private way, or by causing any obstruction or injury to any highway; but no action shall be commenced therefor until after sixty days' notice.

SECT. 19. The county commissioners, upon application within said sixty days, after notice, hearing, and examination, shall order any

change to be made in said railroad, or any highway, or other way connected therewith, and set off necessary land for the same, and award damages to all persons injured or to be injured by said railroad or the changes of such ways made or ordered.

SECT. 20. Upon making the changes so ordered, payment of the damages so awarded, and the costs allowed by the commissioners, and filing in the clerk's office of the supreme court a certificate of one of the commissioners that the changes ordered by them have been made, the liability of the proprietors of the railroad shall cease.

CHAPTER 162.

FENCES, OBSTRUCTING HIGHWAYS, AND FIRES.

SECTION

1. Fences and cattle-guards, by whom built.
2. On neglect, may be built by owner of land.
3. Proprietors may recover against party agreeing to repair.
4. Speed of engines limited at crossings.
5. Cars not to be shifted across highways, except by license.

SECTION

6. License granted and revoked by selectmen or railroad commissioners.
7. Highways not to be obstructed.
8. Proprietors liable for damage by fire.
9. They may insure exposed property.
10. Insurance by owner inures to proprietors paying.

SECTION 1. The proprietors of every railroad shall erect and maintain a sufficient fence on each side of their road, except at the crossings of public highways; and at every such crossing shall construct and maintain, on each side of such highways, such cattle-guards and fences as will prevent cattle from passing upon their road.

SECT. 2. If the proprietors of any railroad neglect to maintain such fence, any owner of adjoining land may give notice thereof to any agent of said proprietors; and if the same is not repaired or made sufficient within twenty days, such owner may build or repair the same, and recover twice the expense thereof by action on the case against such proprietors.

SECT. 3. If any person has agreed to repair or maintain such fence, and neglects to do so, the proprietors of the railroad may rebuild or repair the same, and recover the expense thereof of such person, by action on the case.

SECT. 4. No proprietors of a railroad shall run their engine, cars, or train at a greater speed than six miles an hour across any highway in or near the compact part of any town.

SECT. 5. No such proprietors shall pass and repass any highway with their engines or cars for the purpose of shifting off cars or trains, without license of the selectmen of the town, and under such restrictions and regulations as may be therein prescribed, under penalty of twenty dollars for each offence. If, on application therefor, such license shall be refused by the selectmen, such proprietors may appeal from their decision to the railroad commissioners, who, after notice and hearing, for good cause shown, may grant such license.

SECT. 6. Such license shall be granted only upon application therefor in writing, after due notice to all parties interested and a hearing thereon, and may be revoked for good cause, after like notice to the proprietors.

SECT. 7. No such proprietors shall obstruct by their engine, cars, or train, any highway more than two minutes at any one time, under penalty of twenty dollars for each offence, to the party delayed thereby.

SECT. 8. The proprietors of every railroad shall be liable for all damages which shall accrue to any person or property by fire or steam from any locomotive or other engine on such road.

SECT. 9. Such proprietors shall have an insurable interest in all property situate on the line of such road exposed to such damage, and may effect insurance thereon for their own benefit.

SECT. 10. Any insurance effected by the owners of such property thereon shall so far inure to the benefit of the proprietors of such railroad that in case of loss such proprietors shall be entitled to a deduction from the damages of the amount received thereon, except the premium and expense of recovering the same, or to an assignment of the policy, upon payment of the whole damages sustained.

CHAPTER 163.

PASSENGERS, FREIGHT, AND RAILROAD POLICE.

SECTION

1. Table of fares, etc., to be posted.
2. Rates to be uniform, facilities equal.
3. Penalty for violation.
4. Free passes, to whom limited.
5. Season and excursion tickets.
6. Conductor to collect fares or tickets, and remove passengers not paying.
7. Penalty for violating rule.
8. For evading payment of fare.
9. Prosecutions brought within six months.
10. Passengers' baggage to be carried.
11. Proprietors responsible for safety of baggage; remedy for default.
12. Penalty for injuring baggage.
13. Railroads to give notice of this provision.
14. Trains to stop at crossings.
15. Penalty for violation.
16. Employés of railroads to be appointed police officers; tenure of office.
17. Copy of record of appointment to be filed with town and city clerks.

SECTION

18. Officers of railroad police to wear a badge, except when on duty as detectives.
19. Powers and duties of such officers.
20. Noisy or disorderly passengers may be arrested, detained, and committed without warrant.
21. Loiterers about station-houses, etc., may be fined if remaining after request to leave.
22. No person to be ejected from the cars for non-payment of fare except at a passenger station; railroad police may arrest a passenger for non-payment of fare, etc.
23. Compensation of railroad police officers; liable for official misconduct.
24. Power of railroad police officers to cease upon notice filed with town and city clerks in which notice of appointment has been filed.

SECTION 1. A table of prices for the conveyance of persons and property between the several stations on their road, and between their stations and the stations of other roads with which they have a business connection, shall be posted in their depots by the proprietors of every railroad.

SECT. 2. The rates shall be the same for all persons and for like descriptions of freight between the same points; such prices shall not be raised until after thirty days' notice posted as aforesaid. All persons shall have reasonable and equal terms, facilities, and accommodations for the transportation of themselves, their agents and servants, and of any merchandise and other property, upon any railroad owned or operated in this State, and for the use of the depot and other buildings and grounds of such corporation, and, at any point of intersection of two railroads, reasonable and equal terms and facilities of interchange.

SECT. 3. Every railroad corporation offending against the provisions of section two shall be liable to a penalty not exceeding five hundred dollars, to be recovered by indictment, and to the party aggrieved, in an action of damages.

SECT. 4. No person shall be allowed to pass over any railroad without paying the fare thus established, except stockholders going or returning from the meetings of the proprietors; the directors, superintendent, treasurer, and clerk of said proprietors, and of roads having a business connection from freight and passengers on said road; persons in charge of mails and expresses; and persons poor and in misfortune, who are unable to pay said fare, and to whom passes have been granted.

SECT. 5. Season tickets, by the quarter or other specified time, may be sold at reduced rates; and special rates may be established for passengers to attend agricultural fairs, public meetings, and parties of pleasure, and for military and other organized companies.

SECT. 6. The conductor shall collect promptly the fares of the passengers so established, or the tickets showing that the same have been paid. If any passenger shall not pay such fare, or give up to the conductor such evidence of payment, the conductor may remove him from the train, and command others to assist him, with like authority and under the same penalty for refusal as sheriffs have in the service of process.

SECT. 7. If any conductor, ticket-master, or other officer of any railroad shall knowingly violate any provision of this chapter relative to fares, he shall be fined not exceeding fifty dollars, and shall be incapable of holding any office or employment on said road.

SECT. 8. No person shall ride upon any car or train who has not paid, or does not pay on demand, the established fare; and whoever fraudulently evades or attempts to evade the payment of such fare, by either giving a false answer to the collector thereof, or by traveling beyond the point to which he has paid, or by leaving the train without having paid the fare, or otherwise, shall be fined not exceeding ten dollars for each offence.

SECT. 9. Prosecutions for offences against the provisions of this chapter shall be commenced within six months after the offence is committed.

SECT. 10. Every passenger shall be entitled to have taken with him, by the same train, in consideration of the fare paid by him, a reasonable amount of personal baggage; but if such baggage exceed in value one hundred dollars, the proprietors of the railroad shall not be liable for its loss or damage beyond that sum, unless notice is given thereof and extra charges paid for the risk.

SECT. 11. The proprietors of every railroad shall be responsible for the safe transportation and delivery of all such baggage at the station for which the same was received, and in default thereof shall be liable to pay the owner the damage sustained, after the expiration of thirty days from the time notice of the loss or injury is given to some officer, agent, or servant of said proprietors.

SECT. 12. Any baggage-master, brakeman, express agent, stage-driver, hackman, porter, or other person whose duty it is to handle, remove, or take care of baggage of passengers or travelers, who shall recklessly or willfully injure or destroy any trunk, valise, box, package, or parcel, while loading, transporting, unloading, delivering, removing, or storing the same, shall be punished by fine not exceeding twenty dollars, to be recovered to the use of the prosecutor or complainant, or by imprisonment not exceeding six months, or by both.

SECT. 13. The president or superintendent of every railroad company in this State shall post up a copy of this and the preceding section at every depot between the termini of their road, and keep the same thus posted.

SECT. 14. When a railroad, whose cars are propelled by steam, is crossed by a similar railroad at grade, every engineer of a passenger train on such roads shall stop his engine within five hundred feet of the intersection of said roads, and shall pass slowly over said intersection; but one stop shall be sufficient for all such crossings within six hundred feet of one another upon the same road, and no stop shall be required at any crossing where a signalman is stationed.

SECT. 15. Every engineer violating the provisions of the preceding section shall forfeit one hundred dollars for each offence, and the corporation on whose road the offence is committed shall forfeit the further sum of two hundred dollars, such forfeitures to be recovered in the county where the offence is committed.

SECT. 16. The selectmen of any town, or the mayor and aldermen of any city, may, upon the petition of any railroad corporation having a passenger station within the limits of such town or city, appoint as many of the employes of said company as they may deem proper, police officers, to act as railroad police, for the purpose and with the powers hereinafter set forth. Such police officers shall hold their office during the pleasure of the selectmen, or mayor and aldermen, by whom they are appointed, unless their powers shall be terminated as provided in section twenty-four.

SECT. 17. A copy of the records of the appointments of any railroad police officer shall be filed by the clerk of the corporation upon whose petition such order is made, with the clerk of each town or

city through or into which such railroad runs, and in which it is intended that such police shall act; and the filing of such order shall constitute the persons named therein railroad police within such towns or cities.

SECT. 18. Every officer of the railroad police shall, when on duty, except as detectives, wear a metallic badge in plain view, with the words "railroad police," and the name of the corporation for which he is appointed inscribed thereon.

SECT. 19. Officers of the railroad police may preserve order within and about the premises and upon the cars of the corporation upon whose petition they are appointed; they may arrest, without a written warrant, all idle, intoxicated, or disorderly persons frequenting such premises or cars, and obstructing and annoying, by their presence or conduct, or by profane or indecent language or behavior, the traveling public using the same, and all persons committing thereon any offence known to the laws of this State, and may take the persons so arrested to the nearest police station or other place of lawful detention in the county where the offence is committed; and for this purpose they may carry the persons so arrested to the next railroad station at which the train on which they are traveling stops, although in another county, and detain them there until the next passenger train goes to the county wherein the offence was committed, on which they shall be carried back, to be taken to said police station or other place of lawful detention. The persons so arrested shall be discharged or taken before a police court or justice of the peace, to answer for their offence, within twenty-four hours after their arrest.

SECT. 20. Whenever any passenger upon a railroad train behaves in a noisy or disorderly manner, any railroad police officer may arrest him without a written warrant, and remove him to the baggage car of such train, where such officer may confine him until the arrival of the train at some station where he can be placed in charge of an officer who shall take him to a place of lawful detention.

SECT. 21. Whoever, without right, loiters or remains within any station-house of a railroad company, or upon the platform or grounds adjacent to such station, after being requested to leave the same by any railroad police officer, shall be punished by a fine of not more than twenty dollars.

SECT. 22. No railroad corporation shall eject any person from its cars for non-payment of fare except at some passenger station on its road. Officers of the railroad police may arrest any passenger refusing to pay his fare, and may deliver him into custody at any regular passenger station.

SECT. 23. The compensation of all railroad police shall be paid by the corporations upon whose petition they are respectively appointed. And such railroad police shall be liable to parties aggrieved, for any official misconduct, to the same extent as police officers of towns and cities are liable.

SECT. 24. Whenever any corporation shall cease to require the services of any of the railroad police appointed upon its petition, it may file a notice to that effect in the several offices in which notice of such appointment was originally filed, and thereupon the power of such officers shall cease.

CHAPTER 164.

RAILROAD CONNECTIONS.

SECTION

1. Proprietors to draw cars of connecting roads.
2. Then no other motive power used.
3. Referees to be appointed to settle terms.
4. To settle existing claims.
5. To settle terms in future.
6. Expenses paid equally.

SECTION

7. Award returned to court, and judgment.
8. Penalty for non-compliance.
9. Court may require security for money paid.
10. Contracts for transportation limited.

SECTION 1. The proprietors of every railroad shall, at all reasonable times, draw over their road the cars, passengers, and freight that may be brought and delivered to them by the agents or servants of any other railroad which is authorized to enter on and use the same, or which is authorized to use any connecting railroad having such authority, and all cars, passengers, and freight destined for such railroad, on such terms as the Legislature or others by its authority may from time to time prescribe.

SECT. 2. No proprietors of any railroad over which the cars of other railroads are drawn in conformity to the preceding section shall be required to allow their road to be used by any other than its own motive power.

SECT. 3. In case the proprietors of any railroads interested in such transportation are unable to agree upon the terms thereof, either party, on giving to the other three months' notice, may apply to the supreme court, or to any two justices thereof who are disinterested, in vacation, for the appointment of an impartial, disinterested board of referees; and said court or justices, after due notice to the opposite party, shall appoint such board to determine the same.

SECT. 4. Said referees shall give notice to and hear the parties,

and adjust and finally determine all unsettled claims or accounts relating to such transportation, to the time of the appointment of said referees.

SECT. 5. Said referees shall adjust and determine the rates and terms of such transportation, and all matters relating to the connection in future and from the time of their appointment; and their award thereon shall be valid and binding, until the same shall be altered by the parties or by the Legislature, or by a new decision for the time ensuing by a like board of referees.

SECT. 6. The expenses of such referees shall be paid in equal proportion by the several parties interested.

SECT. 7. The award of said referees may be returned to any subsequent law term of said court, and on due notice to the adverse party shall be examined and recommitted or accepted, and final judgment rendered thereon.

SECT. 8. If either party shall not comply with said award, they shall forfeit and pay to the other one thousand dollars for each month's neglect; but either party may comply with any provision of said award under protest.

SECT. 9. The supreme court, or any two justices thereof, upon application of either party, may make such order for the security of the money paid over or accruing to any party under such award, pending any legal proceedings relating to said award, as may seem just.

SECT. 10. No contract between two or more railroad corporations, for the use of their roads, shall be legal or binding for a longer time than five years, nor unless sanctioned in writing by the railroad commissioners, and approved by the Governor and Council.

CHAPTER 165.

TRUSTEES OF RAILROADS.

SECTION

1. Trustees to call annual meetings of creditors.
2. If trustees do not, one third of creditors may call meeting.
3. Trustees to make report to meeting.
4. Creditors may choose new trustees.

SECTION

5. Property transferred to new trustees.
6. Trustees not personally liable for damage.
7. The assets liable for such loss.
8. Chancery power of supreme court.

SECTION 1. The trustees to whom any railroad has been assigned or conveyed in mortgage for the benefit of the creditors shall call a

meeting of the creditors whose claims are secured by such mortgage once a year, to be holden at some place on or near said railroad, by publication in two daily papers published in Boston, and one paper in each county in which such railroad is located.

SECT. 2. If such trustees, on application of such creditors to the amount of one third of the whole sum secured, do not within fourteen days call such meeting, five or more such creditors, holding the like amount of claims, may call such meeting in the same manner.

SECT. 3. At such meeting, said trustees shall make a report of the state of the trust property, and of their proceedings and management in relation thereto, according to the usual custom of directors of railroads to the stockholders.

SECT. 4. Said creditors, at such meeting, may elect by ballot three or five trustees, being creditors, and a majority at least residents of the State; each creditor being entitled to one vote for each hundred dollars of his debt, and having the same right to vote by proxy as stockholders of railroads at their meetings.

SECT. 5. Upon the election of new trustees, the interest of the former trustees shall be transferred to and vest in such new trustees; and the former trustees shall render and settle an account of their trust to and with such successors, and pay and transfer to them such mortgage estate and any balances in their hands; and if a balance is due said retiring trustees, the assets of the trust shall be charged therewith.

SECT. 6. No trustees or assignees of any railroad mortgage who have the railroad in their charge shall, as such and without their own default, be personally responsible for any damage, by collision or force, occurring to any passenger or freight upon said railroad.

SECT. 7. In case of such damage, the company assigning or mortgaging the railroad shall be liable; and the assets in the hands of the trustees shall be holden for such damage as part of the expenses of the trust, in preference to the claims of the general creditors of the company.

SECT. 8. The supreme court shall have summary power to make all orders and decrees necessary to carry such trusts into effect.

LAWS OF JUNE SESSION, 1879.

CHAPTER 55.

AN ACT IN RELATION TO FREIGHT CHARGES ON RAILROADS.

SECTION

1. Freight tariff regulated.
2. Tariff on through freights not affected.

SECTION

3. Penalty for violation.
4. Takes effect, when.

SECTION 1. No railroad owned or operated in this State shall charge a higher tariff on like classes of freight, by the car-load, when delivered at any station on its line, than is charged to deliver the same at any station on the road when the transportation is for a greater distance.

SECT. 2. Nothing in section one shall be so construed as to affect the rights of any railroad owned or operated in this State from establishing such rates on freights shipped over their lines from points outside of the State to points beyond the State as may seem for their best interests.

SECT. 3. Any railroad corporation or company violating any of the provisions of this act shall be fined not exceeding five hundred dollars, to be recovered in an action of debt by the party aggrieved, or any person who may sue therefor.

SECT. 4. This act shall take effect upon and after its passage.

[Approved July 19, 1879.]

LAWS OF JUNE SESSION, 1881.

CHAPTER 81.

AN ACT PROVIDING FOR THE TRANSPORTATION OF MILK UPON RAILROADS.

SECTION

1. Railroads not to discriminate against small dealers in milk.
2. Railroad commissioners to revise tariff, when.

SECTION

3. Penalty for refusing to carry at rates fixed by commissioners.
4. Takes effect, when.

SECTION 1. No railroad corporation shall contract with any person or corporation to furnish facilities for the transportation of milk,

or shall itself carry the same in large quantities over any portion of its line, without at the same time establishing a tariff under which it will receive, forward, and deliver milk by the can over the same portion of its line for any person tendering the same, in such way that the milk so tendered by the can shall be carried under fairly proportionate advantages in every respect, including price, time, and reasonable care for the same, as the milk carried in large quantities, or through facilities furnished by contract.

SECT. 2. On the petition of any person desiring to forward milk over any railroad, it shall be the duty of the board of railroad commissioners to investigate and ascertain at what rates facilities for the carriage of milk under contract or in large quantities are furnished by the corporation operating such railroad, and to compare the same with the tariff of said corporation for the carriage of milk from and to the same places by the single can, including a reasonable compensation for the care of the same; and if the tariff for the care and carriage of such milk by the can is found to be unreasonably more than the rate charged for its carriage under contract, or in larger quantities, said board of railroad commissioners shall revise such tariff and fix such rates therefor as shall be fairly proportionate with such contract or large-quantity rates, and notify the corporation of such revision; *provided*, that milk received by one corporation from another shall not be considered as milk received at the point of junction of the roads of such corporations, so as to regulate the rates charged on milk tendered for carriage at such point of junction.

SECT. 3. A corporation which shall refuse or neglect to receive, forward, or deliver milk by the can at the tariff rates fixed and notified to it by the board of railroad commissioners in the manner provided in the preceding section shall forfeit to the person tendering such milk the sum of ten dollars for each and every can which it so refuses to receive or neglects to forward or deliver, to be recovered in an action of tort.

SECT. 4. This act shall take effect on and after its passage.

[Approved August 17, 1881.]

CHAPTER 104.

AN ACT IN RELATION TO RAILROAD BRIDGES.

SECTION

1. Railroads to erect bridge-guards;
penalty for neglect.

SECTION

2. Takes effect, when.

SECTION 1. That every railroad corporation shall erect and maintain suitable bridge-guards at every bridge or other structure, any portion of which crosses the railroad less than eighteen feet above the track, such guards to be approved by the board of railroad commissioners, and to be erected and adjusted to their satisfaction. Any corporation which refuses or neglects to comply with the provisions of this act shall, for each month of continuance in such neglect or refusal, forfeit the sum of fifty dollars; and whoever shall willfully destroy or break any such bridge-guard shall forfeit a sum not exceeding one hundred dollars, and be liable to imprisonment not exceeding thirty days.

SECT. 2. This act shall take effect December 1, 1881.

[Approved August 19, 1881.]

LAWS OF JUNE SESSION, 1883.

CHAPTER 26.

AN ACT TO AMEND CHAPTER 162, SECTIONS 5 AND 7, OF THE
GENERAL LAWS.

SECTION

1. Penalty for shifting railway trains
across highways without license
increased.

SECTION

2. Penalty for obstructing highways
increased.

SECTION 1. Section 5 of chapter 162 of the General Laws is amended by striking out the words "twenty dollars" in the first clause thereof, and inserting in the place thereof the words "two hundred dollars," so that the same shall read: No such proprietors shall pass and repass any highway with their engines or cars for the purpose of shifting off cars or trains without license of the selectmen of the town, and under such restrictions and regulations as may be therein prescribed, under penalty of two hundred dollars for each offence.

SECT. 2. Section 7 of chapter 162 of the General Laws is amended by striking out the words "twenty dollars," and inserting

in place thereof the words "two hundred dollars," so that the section shall read: No such proprietors shall obstruct by their engine, cars, or train, any highway more than two minutes at any one time, under penalty of two hundred dollars for each offence, to the party delayed thereby.

[Approved August 7, 1883.]

CHAPTER 27.

AN ACT RELATING TO THE WANTON AND MALICIOUS STOPPING OF RAILROAD TRAINS.

SECTION

1. Penalty for wantonly hindering or stopping railway trains.

SECTION

2. Does not apply to horse railways.
3. Takes effect, when.

SECTION 1. If any person shall maliciously or wantonly stop, hinder, or delay, or by any false alarm or signal, or otherwise, cause to be stopped, hindered, or delayed, or shall in any manner maliciously or wantonly interfere with the running, management, or control of any railroad train, car, or locomotive, he shall be punished by imprisonment not exceeding ten years, or by fine not exceeding one thousand dollars, or by both such fine and imprisonment.

SECT. 2. This act shall not apply to horse railroads.

SECT. 3. This act shall take effect upon its passage.

[Approved August 7, 1883.]

CHAPTER 84.

AN ACT FOR THE PROTECTION OF PERSONS TRAVELING UPON RAILROAD TRAINS.

SECTION

1. Provisions for removing bushes, etc.
2. Report of railroad commissioners.

SECTION

3. Order of court thereon.
4. Takes effect, when.

SECTION 1. Whenever the proprietors of any railroad deem it necessary for the public safety that bushes or other obstructions at or near any highway or farm crossing at grade, or upon the inside of any curve, outside of the thickly settled portion of any town or city, be removed, they may petition the supreme court for authority to take such land as may be necessary and keep the same clear of all such obstructions; and notice thereof being given to the owner of the land, the petition may be referred to the railroad commissioners.

SECT. 2. The railroad commissioners, after notice, examination, and hearing, as required by county commissioners in the case of highways, shall report whether the taking of the whole or any portion of the land described in the petition is reasonably necessary, and if not, what is necessary to be done for the public safety.

SECT. 3. Upon such report the court shall make such order as to such curve or crossing as they may deem necessary.

SECT. 4. This act shall take effect from and after its passage.

[Approved September 11, 1883.]

CHAPTER 100.

AN ACT PROVIDING FOR THE ESTABLISHMENT OF RAILROAD CORPORATIONS BY GENERAL LAW.

SECTION

1. Not less than twenty-five persons may associate, by written articles of agreement, to form a railroad corporation.
2. Articles of association; capital stock; directors.
3. Name; capital stock may be reduced; gauge of road; clerk; treasurer; vacancy; copy of articles of association to be filed and published.
4. Application to justice of supreme court.
5. Articles of association to be recorded in office of secretary of state; form of certificate; certificate to be recorded.
6. First meeting, how called; by-laws; directors and other officers.
7. Mode of determining the public exigency.
8. Commissioners to report and locate road; proviso.
9. Persons aggrieved may file objections; location to be recorded.
10. Assessment of damages.
11. Mode of increasing capital stock; of reducing it; of changing gauge of road.
12. Time of construction limited.

SECTION

13. Not to enter for construction nor run trains until.
14. Railroads may build branches.
15. Change of gauge.
16. Maps and profiles to be filed; annual meetings.
17. Contract and lease; union of corporations; by-laws; increase of rates prohibited; competing roads; lease; terms of lease and union to be recorded, and map filed; general manager's office; first meeting; rights of State unimpaired.
18. Corporations chartered by other States.
19. Stockholders' assent and interests.
20. Bondholders' assent and interests.
21. Tender of amount of appraisal.
22. New stock and bonds.
23. Amount of new stock limited.
24. Amount of dividends limited.
25. New corporation may issue bonds.
26. Fares and freights; connecting roads to draw each others' cars; depots; terminal accommodations of roads of different gauges.
27. Freight charges regulated.
28. Penalty.
29. Repealing clause.
30. Takes effect, when.

SECTION 1. Any number of persons not less than twenty-five, a majority of them being inhabitants of this State, may associate them-

selves together, by written or printed articles of agreement, for the purpose of forming a railroad corporation, and, upon complying with the provisions of this act and of such of the general laws of the State as relate to the formation and organization of railroad corporations not inconsistent with this act, shall, with their associates and successors, be and remain a corporation, with all the powers and privileges, and subject to all the duties, liabilities, and restrictions, set forth in this act, or in the laws of this State applicable to railroad corporations, and incident to corporations of a similar nature.

SECT. 2. The articles of the association shall state the name of the corporation, the termini of the railroad proposed to be built, its length as near as may be, and the name of each city, town, and county through or into which its route extends, its gauge, the amount of the capital stock of the corporation, which shall not be less than fifteen thousand dollars for each mile when the gauge is more than three feet, and not less than six thousand dollars for each mile when the gauge is three feet or less, and shall be divided into shares of one hundred dollars each, and the names of at least seven persons to act as a board of directors until others are chosen by the corporation. Each associate shall subscribe to the articles his name, residence, post-office address, and the number of shares of stock which he agrees to take, but no subscriber shall be bound to pay beyond ten per cent of the amount of his subscription unless the corporation is established.

SECT. 3. The corporate name assumed shall be one not in use by any other corporation in this State, and shall be changed only by act of the Legislature. The associates may from time to time, at any meeting called for the purpose, reduce the amount of the capital stock, but not below the limit prescribed in the preceding section, and not to reduce the par value below one hundred dollars per share; and they may in like manner change the gauge of their road. The directors shall be subscribers to the articles of association, and a majority of them shall be inhabitants of this State. They shall appoint a clerk, who shall be an inhabitant of this State, and shall be sworn to the faithful discharge of his duties, and who shall record the doings of the directors and proceedings of the association. They shall also appoint a treasurer of the association, who shall give bond to their satisfaction for the faithful performance of his trust. The clerk and treasurer thus appointed shall hold their respective offices until clerk and treasurer of the corporation are duly chosen or appointed. The directors may fill any vacancy happening in their own board or in the office of clerk or treasurer previous to the establishment of the corporation. The directors shall cause a copy of

the articles of association to be filed with the clerk of each city or town through or into which the railroad is proposed to be located, with a plan of line showing the termini and the length of railroad in each town, and also shall cause the articles of association to be published in some newspaper in each county in which said railroad is proposed to be located; and the certificate of the clerk of the association, or the affidavit of any other person, upon or annexed to the articles of association, shall be evidence of such publication.

SECT. 4. Whenever the full amount of the capital stock, as provided in section two, has been subscribed in good faith by responsible persons, such association may apply to any justice of the supreme court, who shall appoint a time and place of hearing, give such notice thereof as justice may require, and when it shall be made to appear to such justice that the requirements of this act and such of the general laws of the State as relate to the formation of railroad corporations have been complied with, such justice shall annex to such articles of association a certificate that these requirements of the law have been complied with.

SECT. 5. The directors shall thereupon cause the articles of association, with all the certificates indorsed thereon or annexed thereto, to be recorded in the office of the secretary of state, who, upon the payment to him of his reasonable charges therefor, shall record the same in a book kept for that purpose, and shall issue a certificate, substantially in the following form, to be annexed to said articles of association:

THE STATE OF NEW HAMPSHIRE.

Be it known, that whereas _____ have associated themselves together with the intention of forming a corporation under the name of the _____ for the purpose of locating, constructing, maintaining, and operating a railroad [description of road as in articles of association], and have complied with the laws of this State relating thereto, therefore, I, _____ secretary of state, do hereby certify that the persons aforesaid, their associates and successors, are legally established as a corporation under the name of the _____, with all the powers and privileges, and subject to all the duties, liabilities, and restrictions, of the laws of this State applicable to railroad corporations.

In witness whereof, I have hereunto subscribed my name, and affixed the seal of said State, this

[State seal.]

day of

in the year

, *Secretary of State.*

The certificate so executed shall be recorded by the secretary of state, and the same, with the articles of association and certificates annexed thereto, shall also be recorded in the books of the corporation; and the original, or a duly certified copy thereof, shall be evidence of the establishment of the corporation at the date of such certificate.

SECT. 6. Upon the issue and record of such certificate, the directors may call the first meeting of the corporation at such time and place in this State and for such purposes as they may think the interests of the corporation require, which shall be notified by the clerk of the association by depositing in the post-office, prepaid to the place of their destination, written or printed notices of the time, place, and objects of such meeting, by him signed, seven days at least prior to the day of such meeting, addressed to each stockholder or subscriber for stock at his post-office address; and said clerk shall make a record of his doings in notifying such meeting in the records of the association. At such first meeting, or any adjournment thereof, the corporation may adopt by-laws, choose directors, and all necessary officers and agents, and transact any other business of which notice has been given in the notification of the meeting.

SECT. 7. When the corporation has been duly organized as herein provided, the directors may apply by petition to the supreme court, at the law term or adjourned term thereof, setting forth the facts relating to the establishment and organization of the corporation, its termini, and the route on which it is desired that said railroad shall be located, to determine whether the public good requires the laying out and construction of such railroad. Said court shall forthwith give such notice as justice may require, and, if no sufficient objection is shown, may refer said petition to the railroad commissioners, or to three referees to be appointed by it, who shall give notice, hear the parties as county commissioners are required to do in cases of petitions relating to highways referred to them, at which hearing any person whose business or property may be affected by such laying out and construction shall be heard.

SECT. 8. Such commissioners or referees shall report to the court whether, in their opinion, the public good requires the laying out, construction, and operation of such railroad on the route set forth in such petition, and shall locate the same in the same manner as that provided by the general laws for the location of a railroad; *provided*, that such location shall not be made on or over any portion of any of the routes for which charters have already been granted to any existing railroad corporation not yet located, unless such corporation shall fail to file a location of its route, as now provided by law, on

or before the time limited in its charter, and that no location shall be made upon or over any portion of the location of any railroad except when necessary for connections and crossings; *provided*, that this act shall not prevent the location and construction of a railroad from North Stratford to Canada line by any railroad corporation after the expiration of the time limited in the charter of the Boston, Concord & Montreal Railroad.

SECT. 9. Any person aggrieved by the decision of the court or referees may file his objection, in writing, with the clerk of the court, and be heard thereon at the term of the court at which such report is made; and said court may render judgment on said report, or make such order therein as justice may require; and the location of the route of said railroad, as fixed by the decision of said court, shall be recorded by the secretary of state, and said route may be changed in the mode now prescribed by law.

SECT. 10. If said court shall render judgment laying out said railroad, the directors may apply to the railroad commissioners to assess the damages to landholders and other parties interested, as provided by law.

SECT. 11. If the capital stock fixed in the articles of association, upon the filing of which the certificate of establishment was issued, is found to be insufficient for the construction or equipment of the railroad, the corporation, at a meeting called for the purpose, may increase the same from time to time to the amount necessary for the purpose aforesaid, giving to existing stockholders the right to take the new stock in proportion to their old stock before offering the same to new subscribers. The corporation may in like manner reduce the amount of its capital stock, reducing the stock of each stockholder *pro rata*, provided the stock shall never be reduced below the limit prescribed in section two, and the par value shall not be reduced below one hundred dollars per share, and may in like manner change the gauge of the road; but if any such increase or reduction of capital or change of gauge is made, a certificate of the fact, signed by the president and clerk of the corporation, shall, within thirty days thereafter, be recorded in the office of the secretary of state, as provided for the original location.

SECT. 12. If such corporation does not begin the construction of its road, and expend thereon at least twenty per cent of the amount of its original capital stock within four years after the date of its certificate of establishment, and does not complete its road and open the same for use within six years from said date, its corporate powers and existence shall cease, except as to such parts of said railroad as then shall have been completed for use.

SECT. 13. No railroad corporation shall enter upon any land or other property for the purpose of constructing a road until an amount equal to at least twenty per cent of the par value of each share of the capital stock has been actually paid in; nor shall any corporation commence running its trains until its paid-up capital stock shall be equal to at least one half its cost, including equipment.

SECT. 14. Any railroad corporation now or hereafter in operation in this State may build branches or extensions by complying with the provisions of sections seven, eight, nine, ten, and thirteen of this act, and to such of the general laws of the State as apply thereto, may issue stock solely for the construction and equipment of such branch or extension; *provided*, that such new stock shall be entitled to dividends only at the same rate as may by law be divided on the stock of the corporation before such issue, or without additional capital stock of its indebtedness is not thereby increased.

SECT. 15. No corporation organized to construct its road on a gauge of three feet or less shall change such gauge to more than three feet without complying with all provisions of law in relation to the capital stock of roads of the gauge last named; and the fact that such provisions have been complied with shall be shown to the satisfaction of one of the justices of the supreme court, and indorsed by him upon the certificate of such change of gauge, before recording the same in the office of the secretary of state.

SECT. 16. Whenever the railroad of any corporation organized under this act shall be finished and opened for use, the corporation shall, within one year thereafter, cause a map and profile thereof, with tables of grade and curvature, and a statement of other characteristics of the road, in such form as the railroad commissioners may prescribe, to be certified by its engineers, and filed in the office of the secretary of state. Every such railroad corporation shall hold at least one meeting in each year for the choice of such number of directors as the by-laws may prescribe, which shall be called the annual meeting, and this and all other corporate meetings shall be holden at such time and at such convenient place in this State as the by-laws may prescribe or the directors appoint.

SECT. 17. Two or more railroad corporations may contract that either corporation shall perform all the transportation of persons and freight upon and over the road of the other, or any road leased or operated by it, and any railroad corporation may lease its road, railroad property, and interests to any other railroad corporation, upon such terms and for such time as may be or may have been agreed to by the directors, and as may be or may have been approved by two thirds of all the votes cast on that subject by the stockholders

of each corporation voting according to law thereon at meetings of said stockholders properly notified and held for that purpose. And two or more railroad corporations may apply to the supreme court, at the law term, to determine whether the public good will be promoted by the union of said corporations, and, if said court shall decide that the public good will be promoted by a union of said corporations, they may unite and form a new corporation, which shall have all the powers, privileges, franchises, property, and rights of every kind, assume and be subject to all the duties and liabilities of the corporations forming such union, or either of them, and of railroad corporations, under the laws of this State and under their several charters, upon such terms and conditions and with such guaranties as may be or may have been agreed upon by two thirds of all the votes cast on that subject by the stockholders of each corporation voting according to law thereon at meetings of said stockholders properly notified and held for that purpose; and may adopt by-laws providing for the number and manner of choosing its directors and other officers and define their duties, and the time and manner of holding meetings of the corporation, and for such other purposes as its interests may require; *provided*, that the rates for fares and freights existing August 1, 1883, shall not be increased on any part of the roads so leased or united, and the decrease in the operating expenses consequent upon the leasing or uniting of any roads shall be met from time to time by a reasonable and just reduction of fares and freights; but no competing railroads now prohibited by law from leasing or uniting shall have a right under the provisions of this act to unite with or lease each other unless said roads, or one of them, has heretofore leased or united with some other road or roads for the purpose of forming a continuous line, or shall hereafter, or at the time of such lease or union, unite with or lease some other road for such purpose. When any railroad is leased under the provisions of this act, said lease shall be recorded by the secretary of state, and when a new corporation is formed, as provided in this section, the terms of such union shall be recorded by the secretary of state, and it shall file a map and profile of its road, as required by section sixteen of this act; and when such railroad within this State has been organized or formed by a lease or union of roads organized under the laws of the State, the principal place of business of the corporation and the offices of the superintendent or general management shall be located therein, unless otherwise provided by the Legislature. The first meeting of a new corporation formed by the union of two or more existing railroad corporations shall be called by the presidents of the corporations composing such

union, or either of them, and seven days' notice shall be given of the time and place of said meeting by publication in one or more newspapers in each county where either of said railroads are [is] located; but nothing in this act shall impair the right of the State to hereafter take any or all of the roads that may be leased or united under it, according to the provisions of their several charters or the general laws of the State.

SECT. 18. Railroad corporations created by the laws of other States, operating roads within this State, shall have the same rights for the purposes of operating, leasing, or uniting with other roads as if created by the laws of this State.

SECT. 19. Such new railroad corporation may, if legally necessary to perfect such union, procure the assent of all the stockholders of the several corporations to the terms of union, and they may exchange their shares of stock in the former corporation for shares in the new corporation on such terms as have been agreed to by the votes of the corporations as aforesaid. If from any cause such new corporation shall be unable to procure such consent, such corporation or person holding stock may, if legally necessary to perfect such union, apply to the supreme court, have the value of the interest of such stockholder in the corporation, over and above its debts and liabilities, appraised by said court, or referees appointed by it, or by a jury under the direction of said court.

SECT. 20. In like manner, said corporation may, if legally necessary, procure the assent of any bondholder or person holding a lien on the property of the corporation. If from any cause said new corporation is unable to agree with the person holding such bond or other lien, either party may, if legally necessary so to do, apply to the supreme court, have the value of such interest in the property of the corporation appraised in the same manner as provided in section nineteen of this act.

SECT. 21. On the payment or tender of the amount of such appraisal, with interest to the date of such tender or payment, to the party holding such stock, bonds, or lien, the interest of such holder of stock, bonds, or lien shall cease.

SECT. 22. Said corporation may issue new stock or bonds, and sell the same to an amount sufficient to make such payment or tender, and such bonds may be secured by mortgage of its road, if the corporation shall so vote.

SECT. 23. Said corporation may fix the amount of its capital stock, and bring the stock of the uniting corporations to a common basis, but the capital stock of said new corporation shall not exceed the aggregate capital stock of such corporations actually issued and

paid for at par at the time of such union, or that may be issued and paid for at par for the construction of branches or extension, under section fourteen of this act.

SECT. 24. No dividend shall be made by such united corporation to any greater amount in the aggregate than such separate corporations are allowed by law to make at the date of such union.

SECT. 25. Any railroad corporation organized or united under the provisions of this act may issue its bonds for the purpose of constructing, completing, improving, or equipping its road, and for the purpose of liquidating the indebtedness of the corporation to an amount not exceeding its capital stock actually paid in at the date of such issue, and may mortgage its road to secure the same if the corporation shall so vote.

SECT. 26. The directors of railroad corporations shall from time to time establish reasonable rates for the transportation of passengers and freight over their railroads; and when two or more railroads, organized under the laws of this State, are authorized by law to connect in any city or town in this State, each of them shall, at reasonable times and for reasonable compensation, draw over its road the cars, passengers, and freight delivered to it by any railroad which is authorized to enter on and use the same, or which is authorized to use any connecting railroad having such authority; and each of them shall, for a reasonable compensation, provide upon its road convenient and suitable depot accommodations for the passengers and freight of the other corporation passing to, from, and over it. If the corporations cannot agree upon the terms and conditions upon which accommodations shall be furnished for the passengers and freight of the other, or if two corporations operating roads of different gauges cannot agree as to the requisite terminal accommodations, or as to the manner in which passengers and freight shall be transferred from one road to the other and forwarded, the supreme court, upon the petition of either party, and after notice to the other, shall hear the parties, and determine (having reference to the convenience and interest of the corporations and of the public to be accommodated thereby) the terms and conditions upon which such accommodations for passengers and freight, or requisite terminal accommodations and manner of transferring passengers and freight as aforesaid, shall be furnished, and upon the application of either party shall determine all questions between the parties in relation to the transportation of passengers and freight; and the award of said court shall be binding upon the respective corporations for one year, or until said court shall revise and alter the same.

SECT. 27. No railroad corporation shall charge or receive for the

transportation of freight to any station on its road a greater sum than is at the time charged or received for the transportation of the like class and quantity of freight from the same original point of departure to a station at a greater distance on its road in the same direction. Two or more connecting railroads in this State shall not charge or receive for the transportation of freight to any station on the road of either of them a greater sum than is at the time charged or received for transportation of the like class and quantity of freight from the same original point of departure to a station at a greater distance on the road of either of them in the same direction. In the construction of this section, the sum charged or received for the transportation of freight shall include all terminal charges, and the road of a corporation shall include all the road in use by it, whether owned or operated under a contract or lease.

SECT. 28. A railroad corporation which violates any provision of the preceding section, in addition to liability for all damages sustained by reason of such violation, shall be liable for each offence to a penalty of five hundred dollars, to be recovered in an action of tort to his own use by the party aggrieved, or to the use of the State by the attorney-general or the solicitor of the county in which such violation was committed; but no such action shall be maintained unless the same is brought within two years from the date of such violation.

SECT. 29. The Legislature may alter, amend, or repeal this act when the public good may require the same.

SECT. 30. This act shall take effect upon its passage.

[Approved September 14, 1883.]

CHAPTER 101.

AN ACT TO ESTABLISH A BOARD OF RAILROAD COMMISSIONERS.

SECTION

1. Board of railroad commissioners; appointment, and tenure of office; vacancy; chairman; clerk; eligibility.
2. Salary; office; free transportation; experts and agents; expenses; accountant.
3. Provision for payment of salaries and expenses.

SECTION

4. Powers and duties of board; tariff.
5. May institute proceedings against corporations for violating law.
6. May give notice of required repairs, etc.
7. Complaint by cities and towns.
8. Accidents.
9. Corporations to furnish information to the board.

SECTION

- 10. Legal liability of corporations.
- 11. Examination of books and accounts; publication of statement.
- 12. Special examination.
- 13. Board to have access to lists of stockholders.
- 14. Penalty for refusing to comply with directions of board.

SECTION

- 15. Witnesses.
- 16. Annual return of corporations; report of board.
- 17. The board of railroad commissioners.
- 18. Takes effect on its passage; repealing clause.

SECTION 1. There shall be a board of railroad commissioners, consisting of three able and competent persons. The Governor, with the advice and consent of the Council, shall, on or before the first day of October, 1883, appoint said board, the first of whom shall be chairman and hold his office for three years, the second for two years, and the third for one year, from said day, and before said day in each year thereafter shall appoint one commissioner to continue in office for three years from said day; and if a vacancy occurs, the Governor shall in the same manner fill it for the residue of the term, and in like manner remove any member of said board and appoint another, when the public good shall require it; *provided*, that there shall not be, at the same time, more than two members of said board of the same political party, and that the person appointed as chairman shall be named as such in his commission. The board shall elect one of its members clerk, who shall keep a full and accurate record of its proceedings, and serve such notices as the board may require. The commissioners shall be sworn before entering upon the discharge of their duties. No person in the employment of or owning stock in a railroad corporation shall be a member of said board. No such member shall personally, or through a partner or agent, render any professional service, or make or perform any business contract with or for a railroad corporation existing under the laws of this State, excepting contracts made with them as common carriers, nor shall he directly or indirectly receive a commission, bonus, discount, present, or reward from any such corporation.

SECT. 2. The annual salary of the chairman of the board shall be twenty-five hundred dollars, that of the member elected clerk twenty-two hundred dollars, and that of the other member two thousand dollars, payable quarterly from the treasury of the State. The board shall be provided with an office in the State-house, or in some other suitable place in the city of Concord, in which its records shall be kept. The members of said board shall have free transportation upon all the railroads in the State during their term of office, and said board may employ and take with it experts or other agents whose services it deems to be temporarily of importance. The board

may expend a sum not exceeding two hundred dollars annually in procuring necessary books, maps, statistics, and stationery, and in defraying expenses incidental and necessary to the discharge of its duties, and may employ an accountant skilled in the methods of railroad accounting, who shall, under its direction, supervise the methods by which the accounts of corporations operating railroads are kept, and may expend a sum not exceeding five hundred dollars annually for that purpose. A statement of such expenditures shall accompany its annual report.

SECT. 3. The annual expenses of the board, including the salaries of its members and the expense of accountant, shall be borne by the several railroad corporations, according to their gross receipts, and shall be apportioned by the board of equalization, who, on or before the first day of July in each year, shall assess upon each of said corporations its just proportion of such expenses, in proportion to its said receipts for the year next preceding that in which the assessment is made, and such assessment shall be collected in the manner provided by law for the collection of taxes upon railroad corporations.

SECT. 4. In addition to the authority, powers, and duties now by law pertaining to the board of railroad commissioners, except so far as the same are changed by this act, the board shall have general supervision of all railroads, examine them, keep itself informed as to their condition, the manner in which they are operated with reference to the security and accommodation of the public, and the compliance of the several corporations with their charters and the laws of the State. It shall be the duty of said board to fix tables of maximum charges for the transportation of passengers and freights upon the several railroads operating within this State, and shall change the same from time to time as in the judgment of said board the public good may require; and said rates shall be binding upon the respective railroads.

SECT. 5. The board, whenever in its judgment any such corporation has violated a law, or neglects in any respect to comply with the terms of the act by which it was created, or with the provisions of any law of the State, or any of the lawful directions of the board, shall give notice thereof in writing to such corporation, and, if the violation or neglect is continued after such notice, shall forthwith present the facts to the attorney-general, who shall take such proceeding thereon as shall insure compliance with the laws. But in case the board shall be of opinion that public good requires, it may institute and prosecute, in the name and behalf of the State of New Hampshire, such proceedings as they may deem expedient.

SECT. 6. The board, whenever it deems that repairs are necessary upon any railroad, or that an addition to its rolling-stock, or an addition to or change of its stations or station-houses, or a change in its rates of fare for transporting freight or passengers, or in the mode of operating its road and conducting its business, is reasonable and expedient in order to promote the security, convenience, and accommodation of the public, shall in writing inform the corporation of the improvements and changes which it considers to be proper, and a report of the proceedings shall be included in the annual report of the board.

SECT. 7. Upon the complaint and application of the mayor and aldermen of a city, or the selectmen of a town, within which a part of any railroad is located, the board shall examine the condition and operation thereof; and if twenty or more legal voters in a city or town, by petition in writing, request the mayor and aldermen or selectmen to make such complaint and application, and they decline so to do, they shall indorse upon the petition the reason of such non-compliance and return it to the petitioners, who may within ten days thereafter present it to the said board; and the board may thereupon proceed to make such examination in the same manner as if called upon by the mayor and aldermen or the selectmen, first giving to the petitioners and to the corporation reasonable notice in writing of the time and place of entering upon the same. If upon such examination it appears to the board that the complaint is well founded, it shall so adjudge, and shall inform the corporation operating such railroad of its adjudication in the same manner as is provided in the preceding section.

SECT. 8. The board shall investigate the causes of any accident on a railroad resulting in the loss of life, and of any accident not so resulting which it may deem to require investigation.

SECT. 9. Every railroad corporation shall at all times, on request, furnish to the board any information required by it concerning the condition, management, and operation of the road of such corporation, and particularly copies of all leases, contracts agreements for transportation with express companies or otherwise to which it is a party, and also with the rates for transporting freight and passengers upon its road and other roads with which its business is connected.

SECT. 10. No request or advice of the board shall impair in any manner the legal duties and obligations of a railroad corporation, or its legal liability for the consequences of its acts or of the neglect or mismanagement of any of its agents or servants.

SECT. 11. The board shall from time to time in each year examine the books and accounts of all corporations operating railroads, to

see that they are kept in a uniform manner and upon the system prescribed by the board. Statements of the doings and financial condition of the several corporations shall be published at such times as the board shall deem expedient.

SECT. 12. On the application in writing of a director, or any person or persons owning one fiftieth part of the paid-in capital stock of a corporation operating a railroad, or owning the bonds or other evidences of indebtedness of such corporation equal in amount to one fiftieth part of its paid-in capital stock, the board shall examine the books and the financial condition of said corporation, and shall cause the result of such examination to be published in one or more daily papers in the city of Concord.

SECT. 13. The board shall at all times have access to the list of stockholders of any corporation operating a railroad, and may at any time cause the same to be copied, in whole or in part, for the information of the board or of persons owning stock in such corporation.

SECT. 14. Any railroad corporation refusing to submit its books to the examination of the board, or to keep its accounts in the method prescribed by the board, or which shall neglect or refuse to comply with the lawful directions of the board, shall forfeit for every such refusal a sum not exceeding one thousand dollars.

SECT. 15. Either member of said board, in all cases investigated by it, may summon witnesses in behalf of the State, and may administer oaths and take testimony. The fees of such witnesses for travel and attendance shall be the same as for witnesses before the supreme court, and shall be paid from the treasury of the State, and a certificate of the board thereof shall be filed with the state treasurer; and any justice of the supreme court, either in term time or vacation, upon application of the board, shall compel the attendance of such witnesses and the giving of testimony before the board in the same manner and to the same extent as before said court.

SECT. 16. The board shall prescribe the form for the annual returns required to be made by railroad corporations, and may from time to time make changes and additions in such form, giving to the corporations one year's notice of any such changes or additions as require an alteration in the method or form of keeping their accounts, and shall, on or before the fifteenth day of September in each year, furnish blank forms of such returns; and said corporations shall, on or before the first day of January in each year, make returns to said board, subscribed and sworn to by the president, treasurer, and superintendent of each. When a return is defective, or appears to be erroneous, the board shall notify the corporation to amend the same within fifteen days. The board shall prepare such

tables and abstracts as it deems expedient of all the returns, and make an annual report of its doings, including all such statements, facts, and explanations as will disclose the actual working of the system of railroad transportation in its bearing upon the business and prosperity of the State, and such suggestions as to its general railroad policy, or any part thereof, or the condition, affairs, or conduct of any railroad corporation, as may seem to it appropriate, which shall be transmitted to the secretary of state on or before the first Wednesday in June in each year, to be laid before the General Court at its biennial sessions.

SECT. 17. On and after this act takes effect, the board of railroad commissioners established by it shall be the railroad commissioners of the State, and shall be taken for and deemed to be the railroad commissioners named in the laws of the State.

SECT. 18. This act shall take effect upon its passage, and sections 1, 2, 3, and 4 of chapter 157 of the General Laws, and all acts and parts of acts inconsistent with the provisions of this act, are hereby repealed.

[Approved September 14, 1883.]

LAWS OF JUNE SESSION, 1885.

CHAPTER 34.

AN ACT IN AMENDMENT OF SECTION 3 OF CHAPTER 101 OF THE LAWS OF 1883, RELATING TO PROVISIONS FOR PAYMENT OF SALARIES AND EXPENSES OF RAILROAD COMMISSIONERS.

SECTION

1. Time of apportioning expenses, etc., changed.

SECTION

2. Repealing clause, takes effect, when.

SECTION 1. That section 3 of chapter 101 of the laws of 1883 be amended by striking out therefrom the words "on or before the first day of July in each year," and by inserting in the place thereof the words "each year, at the time they assess the taxes upon the railroads," so that said section after being so amended shall read: "The annual expenses of the board, including the salaries of its members and the expense of accountant, shall be borne by the several railroad corporations according to their gross receipts, and

shall be apportioned by the board of equalization, who each year, at the time they assess the taxes upon the railroads, shall assess upon each of said corporations its just proportion of such expenses in proportion to its said receipts for the year next preceding that in which the assessment is made; and such assessment shall be collected in the manner provided by law for the collection of taxes upon railroad corporations."

SECT. 2. All acts or parts of acts inconsistent with this act are hereby repealed. This act shall take effect upon its passage.

[Approved August 12, 1885.]

CHAPTER 63.

AN ACT TO PROVIDE FOR THE SPEEDY DELIVERY OF FREIGHTS, AND TO REGULATE THE LIABILITY OF RAILROAD CORPORATIONS IN CERTAIN CASES.

SECTION 1. Consignee to remove goods or pay for use of cars.

SECTION 1. That any railroad corporation having transported any lumber, wood, coal, stone, brick, iron, sand, machinery, grain, or other bulky or heavy freight, which is usually delivered to and unloaded by the consignee from the cars, may, after the arrival of such freight at the place of its destination, provided said goods are in good condition, notify the consignee in writing to receive and remove the same, and after five days from the time of such notice may charge a reasonable sum for the use and detention of the cars containing the same.

[Approved August 25, 1885.]

CHAPTER 96.

AN ACT FOR THE BETTER PROTECTION OF LIFE AND PROPERTY.

SECTION 1. Penalty for illegal carriage and use of explosive compounds.

SECTION 1. No person shall transport or have in his possession for the purpose of transporting in any public conveyance, nor shall

any person leave, deposit, or have in his possession in any dwelling-house, shop, or manufactory, dynamite, giant powder, nitro-glycerine, or any explosive compound of which nitro-glycerine forms a part. Any violation of this act shall be punished by a fine of not more than five hundred dollars nor less than one hundred dollars.

[Approved August 29, 1885.]

CHAPTER 98.

AN ACT RELATING TO RAILROAD CROSSINGS, AND THE DUTIES OF RAILROAD COMMISSIONERS IN CERTAIN CASES.

SECTION

1. Warning signs.
2. Their construction.
3. When not required.
4. Whistling and bell-ringing.
5. Grade crossings.

SECTION

6. Highway crossings.
7. Same subject.
8. Same subject.
9. Repealing clause; takes effect, when.

SECTION 1. Every railroad corporation shall maintain warning signs at every railroad crossing at grade, except as hereinafter provided.

SECT. 2. Such warning signs shall be constructed upon a uniform pattern, to be determined by the railroad commissioners; but warning signs already in existence and legible shall not be required to be of the established pattern, except as they are renewed.

SECT. 3. No warning signs shall be required to be placed at a crossing where gates or a flagman is employed.

SECT. 4. When a locomotive approaches within eighty rods of a crossing over a highway at grade, the whistle shall be sounded by two long and two short whistles, and the bell shall be rung until the locomotive passes the crossing; *provided*, that no whistle need be sounded in cities and villages where upon petition and complaint the board of railroad commissioners shall decide that it is not necessary.

SECT. 5. No railroad shall be constructed across another railroad at grade without the consent in writing of the board of railroad commissioners.

SECT. 6. When a railroad is hereafter laid out across a highway or other way it shall be constructed so as not to unreasonably obstruct the same, and unless the railroad commissioners authorize a crossing at grade, it shall be constructed so as to pass either over or

under the highway or other way ; and whenever any railroad now existing, or hereafter constructed, crosses any highway or other way at grade, if such highway or other way is so situated that in the ordinary running of trains it is impossible to avoid a detention longer than two minutes, the railroad commissioners, upon petition, after hearing all persons interested therein, may prescribe and establish such regulations and restrictions relating to the time of obstructing such highway or other way, by placing or running engines, cars, or trains thereon, as in their judgment are proper for the protection of the public ; *provided*, that in no case shall such obstruction exceed five minutes ; and an appeal from all decisions of the board of railroad commissioners under this act shall be had to the supreme court of the State.

SECT. 7. A railroad corporation may raise or lower a highway or other way for the purpose of having its road pass over or under the same ; but before proceeding to bridge or excavate for the purpose of crossing the same, the railroad commissioners shall be notified, and the board shall give opportunity for any parties to appear and be heard before giving its written consent to the proposed change in the manner of crossing.

SECT. 8. A railroad corporation may alter the course of a highway or other way for the purpose of facilitating the crossing of the same by its road, or of permitting its road to pass at the side thereof without crossing, upon obtaining the written consent of the railroad commissioners ; but such consent shall not be given until all parties in interest shall have been duly notified and heard.

SECT. 9. All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

[Approved August 29, 1885.]

THE INTERSTATE COMMERCE ACT

PASSED BY THE FORTY-NINTH CONGRESS.

The provisions of this act shall apply to any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad, or partly by railroad and partly by water when both are used, under a common control, management, or arrangement, for a continuous carriage or shipment from one State or Territory of the United States, or the District of Columbia, to any other State or Territory of the United States, or the District of Columbia, or from any place in the United States to an adjacent foreign country or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country and carried from such place to a port of transshipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country: *Provided, however,* That the provisions of this act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property, wholly within one State, and not shipped to or from a foreign country, from or to any State or Territory as aforesaid.

The term "railroad" as used in this act shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease; and the term "transportation" shall include all instrumentalities of shipment or carriage.

All charges made for any service rendered or to be rendered in the transportation of passengers or property as aforesaid, or in con-

nection therewith, or for the receiving, delivering, storage, or handling of such property, shall be reasonable and just; and every unjust and unreasonable charge for such service is prohibited and declared to be unlawful.

SECT. 2. That if any common carrier subject to the provisions of this act shall, directly or indirectly, by any special rate, rebate, drawback, or other device, charge, demand, collect, or receive from any person or persons a greater or less compensation for any service rendered, or to be rendered, in the transportation of passengers or property, subject to the provisions of this act, than it charges, demands, collects, or receives from any other person or persons for doing for him or them a like and contemporaneous service in the transportation of a like kind of traffic under substantially similar circumstances and conditions, such common carrier shall be deemed guilty of unjust discrimination, which is hereby prohibited and declared to be unlawful.

SECT. 3. That it shall be unlawful for any common carrier subject to the provisions of this act to make or give any undue or unreasonable preference or advantage to any particular person, company, firm, corporation, or locality, or any particular description of traffic, in any respect whatsoever, or to subject any particular person, company, firm, corporation, or locality, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever.

Every common carrier subject to the provisions of this act shall, according to their respective powers, afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines, and for the receiving, forwarding, and delivering of passengers and property to and from their several lines and those connecting therewith, and shall not discriminate in their rates and charges between such connecting lines; but this shall not be construed as requiring any such common carrier to give the use of its tracks or terminal facilities to another carrier engaged in like business.

SECT. 4. That it shall be unlawful for any common carrier subject to the provisions of this act to charge or receive any greater compensation in the aggregate for the transportation of passengers or of like kind of property, under substantially similar circumstances and conditions, for a shorter than for a longer distance over the same line, in the same direction, the shorter being included within the longer distance; but this shall not be construed as authorizing any common carrier within the terms of this act to charge and receive as great compensation for a shorter as for a longer distance:

Provided, however, That upon application to the commission appointed under the provisions of this act, such common carrier may, in special cases, after investigation by the commission, be authorized to charge less for longer than for shorter distances for the transportation of passengers or property; and the commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section of this act.

SECT. 5. That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any contract, agreement, or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offence.

SECT. 6. That every common carrier subject to the provisions of this act shall print and keep for public inspection schedules showing the rates and fares and charges for the transportation of passengers and property which any such common carrier has established and which are in force at the time upon its railroad, as defined by the first section of this act. The schedules printed as aforesaid by any such common carrier shall plainly state the places upon its railroad between which property and passengers will be carried, and shall contain the classification of freight in force upon such railroad, and shall also state separately the terminal charges and any rules or regulations which in any wise change, affect, or determine any part of the aggregate of such aforesaid rates and fares and charges. Such schedules shall be plainly printed in large type, of at least the size of ordinary pica, and copies for the use of the public shall be kept in every depot or station upon any such railroad, in such places and in such form that they can be conveniently inspected.

Any common carrier subject to the provisions of this act receiving freight in the United States to be carried through a foreign country to any place in the United States shall also in like manner print and keep for public inspection, at every depot where such freight is received for shipment, schedules showing the through rates established and charged by such common carrier to all points in the United States beyond the foreign country to which it accepts freight for shipment; and any freight shipped from the United States through a foreign country into the United States, the through rate on which shall not have been made public as required by this act, shall, before it is admitted into the United States from said foreign

country, be subject to customs duties as if said freight were of foreign production; and any law in conflict with this section is hereby repealed.

No advance shall be made in the rates, fares, and charges which have been established and published as aforesaid by any common carrier in compliance with the requirements of this section, except after ten days' public notice, which shall plainly state the changes proposed to be made in the schedule then in force, and the time when the increased rates, fares, or charges will go into effect; and the proposed changes shall be shown by printing new schedules, or shall be plainly indicated upon the schedules in force at the time and kept for public inspection. Reductions in such published rates, fares, or charges may be made without previous public notice; but whenever any such reduction is made, notice of the same shall immediately be publicly posted, and the changes made shall immediately be made public by printing new schedules, or shall immediately be plainly indicated upon the schedules at the time in force and kept for public inspection.

And when any such common carrier shall have established and published its rates, fares, and charges, in compliance with the provisions of this section, it shall be unlawful for such common carrier to charge, demand, collect, or receive from any person or persons a greater or less compensation for the transportation of passengers or property, or for any services in connection therewith, than is specified in such published schedule of rates, fares, and charges as may at the time be in force.

Every common carrier subject to the provisions of this act shall file with the commission hereinafter provided for copies of its schedules of rates, fares, and charges which have been established and published in compliance with the requirements of this section, and shall promptly notify said commission of all changes made in the same. Every such common carrier shall also file with said commission copies of all contracts, agreements, or arrangements with other common carriers in relation to any traffic affected by the provisions of this act to which it may be a party. And in cases where passengers and freight pass over continuous lines or routes operated by more than one common carrier, and the several common carriers operating such lines or routes establish joint tariffs of rates or fares or charges for such continuous lines or routes, copies of such joint tariffs shall also, in like manner, be filed with said commission. Such joint rates, fares, and charges on such continuous lines so filed as aforesaid shall be made public by such common carriers when directed by said commission, in so far as may, in the judgment of

the commission, be deemed practicable; and said commission shall from time to time prescribe the measure of publicity which shall be given to such rates, fares, and charges, or to such part of them as it may deem it practicable for such common carriers to publish, and the places in which they shall be published; but no common carrier party to any such joint tariff shall be liable for the failure of any other common carrier party thereto to observe and adhere to the rates, fares, or charges thus made and published.

If any such common carrier shall neglect or refuse to file or publish its schedules or tariffs of rates, fares, and charges as provided in this section or any part of the same, such common carrier shall, in addition to other penalties herein prescribed, be subject to a writ of mandamus, to be issued by any circuit court of the United States in the judicial district wherein the principal office of said common carrier is situated or wherein such offence may be committed, and if such common carrier be a foreign corporation, in the judicial circuit wherein such common carrier accepts traffic and has an agent to perform such service, to compel compliance with the aforesaid provisions of this section; and such writ shall issue in the name of the people of the United States, at the relation of the commissioners appointed under the provisions of this act; and failure to comply with its requirements shall be punishable as and for a contempt; and the said commissioners, as complainants, may also apply, in any such circuit court of the United States, for a writ of injunction against such common carrier, to restrain such common carrier from receiving or transporting property among the several States and Territories of the United States, or between the United States and adjacent foreign countries, or between ports of transshipment and of entry and the several States and Territories of the United States, as mentioned in the first section of this act, until such common carrier shall have complied with the aforesaid provisions of this section of this act.

SECT. 7. That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any combination, contract, or agreement, expressed or implied, to prevent, by change of time schedule, carriage in different cars, or by other means or devices, the carriage of freights from being continuous from the place of shipment to the place of destination; and no break of bulk, stoppage, or interruption made by such common carrier shall prevent the carriage of freights from being and being treated as one continuous carriage from the place of shipment to the place of destination, unless such break, stoppage, or interruption was made in good faith for some necessary purpose, and without any intent to avoid or unneces-

sarily interrupt such continuous carriage or to evade any of the provisions of this act.

SECT. 8. That in case any common carrier subject to the provisions of this act shall do, cause to be done, or permit to be done any act, matter, or thing in this act prohibited or declared to be unlawful, or shall omit to do any act, matter, or thing in this act required to be done, such common carrier shall be liable to the person or persons injured thereby for the full amount of damages sustained in consequence of any such violation of the provisions of this act, together with a reasonable counsel or attorney's fee, to be fixed by the court in every case of recovery, which attorney's fee shall be taxed and collected as part of the costs in the case.

SECT. 9. That any person or persons claiming to be damaged by any common carrier subject to the provisions of this act may either make complaint to the commission as hereinafter provided for, or may bring suit in his or their own behalf for the recovery of the damages for which such common carrier may be liable under the provisions of this act, in any district or circuit court of the United States of competent jurisdiction; but such person or persons shall not have the right to pursue both of said remedies, and must in each case elect which one of the two methods of procedure herein provided for he or they will adopt. In any such action brought for the recovery of damages the court before which the same shall be pending may compel any director, officer, receiver, trustee, or agent of the corporation or company defendant in such suit to attend, appear, and testify in such case, and may compel the production of the books and papers of such corporation or company party to any such suit; the claim that any such testimony or evidence may tend to criminate the person giving such evidence shall not excuse such witness from testifying, but such evidence or testimony shall not be used against such person on the trial of any criminal proceeding.

SECT. 10. That any common carrier subject to the provisions of this act, or, whenever such common carrier is a corporation, any director or officer thereof, or any receiver, trustee, lessee, agent, or person acting for or employed by such corporation, who, alone or with any other corporation, company, person, or party, shall willfully do or cause to be done, or shall willingly suffer or permit to be done, any act, matter, or thing in this act prohibited or declared to be unlawful, or who shall aid or abet therein, or shall willfully omit or fail to do any act, matter, or thing in this act required to be done, or shall cause or willingly suffer or permit any act, matter, or thing so directed or required by this act to be done not to be so done, or shall aid or abet any such omission or failure, or shall be guilty of

any infraction of this act, or shall aid or abet therein, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in any district court of the United States within the jurisdiction of which such offence was committed, be subject to a fine of not to exceed five thousand dollars for each offence.

SECT. 11. That a commission is hereby created and established, to be known as the Interstate Commerce Commission, which shall be composed of five commissioners, who shall be appointed by the President, by and with the advice and consent of the Senate. The commissioners first appointed under this act shall continue in office for the term of two, three, four, five, and six years, respectively, from the first day of January, anno Domini eighteen hundred and eighty-seven, the term of each to be designated by the President; but their successors shall be appointed for terms of six years, except that any person chosen to fill a vacancy shall be appointed only for the unexpired time of the commissioner whom he shall succeed. Any commissioner may be removed by the President for inefficiency, neglect of duty, or malfeasance in office. Not more than three of the commissioners shall be appointed from the same political party. No person in the employ of or holding any official relation to any common carrier subject to the provisions of this act, or owning stock or bonds thereof, or who is in any manner pecuniarily interested therein, shall enter upon the duties of or hold such office. Said commissioners shall not engage in any other business, vocation, or employment. No vacancy in the commission shall impair the right of the remaining commissioners to exercise all the powers of the commission.

SECT. 12. That the commission hereby created shall have authority to inquire into the management of the business of all common carriers subject to the provisions of this act, and shall keep itself informed as to the manner and method in which the same is conducted, and shall have the right to obtain from such common carriers full and complete information necessary to enable the commission to perform the duties and carry out the objects for which it was created; and for the purposes of this act the commission shall have power to require the attendance and testimony of witnesses and the production of all books, papers, tariffs, contracts, agreements, and documents relating to any matter under investigation, and to that end may invoke the aid of any court of the United States in requiring the attendance and testimony of witnesses and the production of books, papers, and documents under the provisions of this section.

And any of the circuit courts of the United States within the jurisdiction of which such inquiry is carried on may, in case of contumacy

or refusal to obey a subpoena issued to any common carrier subject to the provisions of this act, or other person, issue an order requiring such common carrier or other person to appear before said commission (and produce books and papers if so ordered) and give evidence touching the matter in question; and any failure to obey such order of the court may be punished by such court as a contempt thereof. The claim that any such testimony or evidence may tend to criminate the person giving such evidence shall not excuse such witness from testifying; but such evidence or testimony shall not be used against such person on the trial of any criminal proceeding.

SECT. 13. That any person, firm, corporation, or association, or any mercantile, agricultural, or manufacturing society, or any body politic or municipal organization complaining of anything done or omitted to be done by any common carrier subject to the provisions of this act in contravention of the provisions thereof, may apply to said commission by petition, which shall briefly state the facts; whereupon a statement of the charges thus made shall be forwarded by the commission to such common carrier, who shall be called upon to satisfy the complaint or to answer the same in writing within a reasonable time, to be specified by the commission. If such common carrier, within the time specified, shall make reparation for the injury alleged to have been done, said carrier shall be relieved of liability to the complainant only for the particular violation of law thus complained of. If such carrier shall not satisfy the complaint within the time specified, or there shall appear to be any reasonable ground for investigating said complaint, it shall be the duty of the commission to investigate the matters complained of in such manner and by such means as it shall deem proper.

Said commission shall in like manner investigate any complaint forwarded by the railroad commissioner or railroad commission of any State or Territory at the request of such commissioner or commission, and may institute any inquiry on its own motion in the same manner and to the same effect as though complaint had been made.

No complaint shall at any time be dismissed because of the absence of direct damage to the complainant.

SECT. 14. That whenever an investigation shall be made by said commission it shall be its duty to make a report in writing in respect thereto, which shall include the findings of fact upon which the conclusions of the commission are based, together with its recommendation or what reparation, if any, should be made by the common carrier to any party or parties who may be found to have been injured; and such findings so made shall thereafter in all judi-

cial proceedings be deemed *prima-facie* evidence as to each and every fact found.

All reports of investigations made by the commission shall be entered of record, and a copy thereof shall be furnished to the party who may have complained and to any common carrier that may have been complained of.

SECT. 15. That if in any case in which an investigation shall be made by said commission it shall be made to appear to the satisfaction of the commission, either by the testimony of witnesses or other evidence, that anything has been done or omitted to be done in violation of the provisions of this act, or of any law cognizable by said commission, by any common carrier, or that any injury or damage has been sustained by the party or parties complaining, or by other parties aggrieved in consequence of any such violation, it shall be the duty of the commission to forthwith cause a copy of its report in respect thereto to be delivered to such common carrier, together with a notice to said common carrier to cease and desist from such violation, or to make reparation for the injury so found to have been done, or both, within a reasonable time, to be specified by the commission; and if, within the time specified, it shall be made to appear to the commission that such common carrier has ceased from such violation of law, and has made reparation for the injury found to have been done, in compliance with the report and notice of the commission, or to the satisfaction of the party complaining, a statement to that effect shall be entered of record by the commission, and the said common carrier shall thereupon be relieved from further liability or penalty for such particular violation of law.

SECT. 16. That whenever any common carrier, as defined in and subject to the provisions of this act, shall violate or refuse or neglect to obey any lawful order or requirement of the commission in this act named, it shall be the duty of the commission, and lawful for any company or person interested in such order or requirement, to apply, in a summary way, by petition, to the circuit court of the United States sitting in equity in the judicial district in which the common carrier complained of has its principal office, or in which the violation or disobedience of such order or requirement shall happen, alleging such violation or disobedience, as the case may be; and the said court shall have power to hear and determine the matter on such short notice to the common carrier complained of, as the court shall deem reasonable; and such notice may be served on such common carrier, his or its officers, agents, or servants, in such

manner as the court shall direct; and said court shall proceed to hear and determine the matter speedily as a court of equity, and without the formal pleadings and proceedings applicable to ordinary suits in equity, but in such manner as to do justice in the premises; and to this end such court shall have power, if it think fit, to direct and prosecute, in such mode and by such persons as it may appoint, all such inquiries as the court may think needful to enable it to form a just judgment in the matter of such petition; and on such hearing the report of said commission shall be *prima-facie* evidence of the matters therein stated; and if it be made to appear to such court on such hearing or on report of any such person or persons that the lawful order or requirement of said commission drawn in question has been violated or disobeyed, it shall be lawful for such court to issue a writ of injunction or other proper process, mandatory or otherwise, to restrain such common carrier from further continuing such violation or disobedience of such order or requirement of said commission, and enjoining obedience to the same; and in case of any disobedience of any such writ of injunction or other proper process, mandatory or otherwise, it shall be lawful for such court to issue writs of attachment, or any other process of said court incident or applicable to writs of injunction or other proper process, mandatory or otherwise, against such common carrier, and, if a corporation, against one or more of the directors, officers, or agents of the same, or against any owner, lessee, trustee, receiver, or other person failing to obey such writ of injunction or other proper process, mandatory or otherwise; and said court may, if it shall think fit, make an order directing such common carrier or other person so disobeying such writ of injunction or other proper process, mandatory or otherwise, to pay such sum of money, not exceeding for each carrier or person in default the sum of \$500, for every day after a day to be named in the order that such carrier or other person shall fail to obey such injunction or other proper process, mandatory or otherwise; and such moneys shall be payable, as the court shall direct, either to the party complaining, or into court to abide the ultimate decision of the court, or into the treasury; and payment thereof may, without prejudice to any other mode of recovering the same, be enforced by attachment or order in the nature of a writ of execution, in like manner as if the same had been recovered by a final decree *in personam* in such court. When the subject in dispute shall be of the value of two thousand dollars or more, either party to such proceeding before said court may appeal to the Supreme Court of the United States, under the same regulations now provided by law in respect of security for such appeal; but

such appeal shall not operate to stay or supersede the order of the court or the execution of any writ or process thereon; and such court may, in every such matter, order the payment of such costs and counsel fees as shall be deemed reasonable. Whenever any such petition shall be filed or presented by the commission it shall be the duty of the district attorney, under the direction of the attorney-general of the United States, to prosecute the same; and the costs and expenses of such prosecution shall be paid out of the appropriation for the expenses of the courts of the United States. For the purposes of this act, excepting its penal provisions, the circuit courts of the United States shall be deemed to be always in session.

SECT. 17. That the commission may conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice. A majority of the commission shall constitute a quorum for the transaction of business, but no commissioner shall participate in any hearing or proceeding in which he has any pecuniary interest. Said commission may, from time to time, make or amend such general rules or orders as may be requisite for the order and regulation of proceedings before it, including forms of notices and the service thereof, which shall conform, as nearly as may be, to those in use in the courts of the United States. Any party may appear before said commission and be heard in person or by attorney. Every vote and official act of the commission shall be entered of record, and its proceedings shall be public upon the request of either party interested. Said commission shall have an official seal, which shall be judicially noticed. Either of the members of the commission may administer oaths and affirmations.

SECT. 18. That each commissioner shall receive an annual salary of seven thousand five hundred dollars, payable in the same manner as the salaries of judges of the courts of the United States. The commission shall appoint a secretary, who shall receive an annual salary of three thousand five hundred dollars, payable in like manner. The commission shall have authority to employ and fix the compensation of such other employés as it may find necessary to the proper performance of its duties, subject to the approval of the secretary of the interior.

The commission shall be furnished by the secretary of the interior with suitable offices and all necessary office supplies. Witnesses summoned before the commission shall be paid the same fees and mileage that are paid witnesses in the courts of the United States.

All of the expenses of the commission, including all necessary expenses for transportation incurred by the commissioners, or by their

employés under their orders, in making any investigation in any other places than in the city of Washington, shall be allowed and paid, on the presentation of itemized vouchers therefor approved by the chairman of the commission and the secretary of the interior.

SECT. 19. That the principal office of the commission shall be in the city of Washington, where its general sessions shall be held; but whenever the convenience of the public or of the parties may be promoted or delay or expense prevented thereby, the commission may hold special sessions in any part of the United States. It may, by one or more of the commissioners, prosecute any inquiry necessary to its duties, in any part of the United States, into any matter or question of fact pertaining to the business of any common carrier subject to the provisions of this act.

SECT. 20. That the commission is hereby authorized to require annual reports from all common carriers subject to the provisions of this act, to fix the time and prescribe the manner in which such reports shall be made, and to require from such carriers specific answers to all questions upon which the commission may need information. Such annual reports shall show in detail the amount of capital stock issued, the amounts paid therefor, and the manner of payment for the same; the dividends paid, the surplus fund, if any, and the number of stockholders; the funded and floating debts and the interest paid thereon; the cost and value of the carrier's property, franchises, and equipment; the number of employés and the salaries paid each class; the amounts expended for improvements each year, how expended, and the character of such improvements; the earnings and receipts from each branch of business and from all sources; the operating and other expenses; the balances of profit and loss; and a complete exhibit of the financial operations of the carrier each year, including an annual balance-sheet. Such reports shall also contain such information in relation to rates or regulations concerning fares or freights, or agreements, arrangements, or contracts with other common carriers as the commission may require; and the said commission may, within its discretion, for the purpose of enabling it the better to carry out the purposes of this act, prescribe (if in the opinion of the commission it is practicable to prescribe such uniformity and methods of keeping accounts) a period of time within which all common carriers subject to the provisions of this act shall have, as near as may be, a uniform system of accounts, and the manner in which such accounts shall be kept.

SECT. 21. That the commission shall, on or before the first day of December in each year, make a report to the secretary of the interior, which shall be by him transmitted to Congress, and copies of

which shall be distributed as are the other reports issued from the interior department. This report shall contain such information and data collected by the commission as may be considered of value in the determination of questions connected with the regulation of commerce, together with such recommendations as to additional legislation relating thereto as the commission may deem necessary.

SECT. 22. That nothing in this act shall apply to the carriage, storage, or handling of property free or at reduced rates for the United States, state or municipal governments, or for charitable purposes, or to or from fairs and expositions for exhibition thereat, or the issuance of mileage, excursion, or commutation passenger tickets; nothing in this act shall be construed to prohibit any common carrier from giving reduced rates to ministers of religion; nothing in this act shall be construed to prevent railroads from giving free carriage to their own officers and employés, or to prevent the principal officers of any railroad company or companies from exchanging passes or tickets with other railroad companies for their officers and employés; and nothing in this act contained shall in any way abridge or alter the remedies now existing at common law or by statute, but the provisions of this act are in addition to such remedies: *Provided*, That no pending litigation shall in any way be affected by this act.

SECT. 23. That the sum of one hundred thousand dollars is hereby appropriated for the use and purposes of this act for the fiscal year ending June thirtieth, anno Domini eighteen hundred and eighty-eight, and the intervening time anterior thereto.

SECT. 24. That the provisions of sections eleven and eighteen of this act, relating to the appointment and organization of the commission herein provided for, shall take effect immediately, and the remaining provisions of this act shall take effect sixty days after its passage.

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capital stock increased	1866	58	345
time extended, etc.	1870	62	397
time extended	1871	63	263
lease to E. R. R., etc.	1871	63	291
connection with P. & D. R. R.	1873	65	125
mortgage bonds	1878	70	160
<i>Portsmouth Marginal :</i>			
incorporated	1873	65	335
<i>Portsmouth Marine Railway :</i>			
incorporated	1833	30	58
<i>Portsmouth, Newmarket & Exeter :</i>			
incorporated	1845	37	127
<i>Portsmouth & Concord :</i>			
incorporated ["Portsmouth, Newmarket & Concord"]	1845	37	115
other state railroads may subscribe for capital stock 1846 — 38 : 52	1848	40	168
may build branch 1846 — 38 : 52	1846	38	138
1848 — 40 : 46	1853	45	227
time extended	1850	42	72

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<i>Portsmouth & Concord, — continued :</i>			
headquarters, Portsmouth	1850	42	72
mortgage bonds	1850	42	113
preferred stock	1852	44	129
<i>Portsmouth & Dover :</i>			
“proprietors of” incorporated	1842	35	159
time extended	1844	36	568
“proprietors of” dropped, etc.			
1848 — 40 : 162	1851	43	101
time extended	1855	47	371
re-incorporated	1866	58	26
time extended, and lease authorized			
1867 — 59 : 561	1870	62	377
towns interested may subscribe for stock .	1871	63	267
capital stock increased 1872 — 64 : 423	1874	66	65
may unite with P., Gt. F. & C. R. R. .	1873	65	125
may erect wharves	1873	65	203
stock and bonds	1876	68	319
<i>Profile & Franconia Notch :</i>			
incorporated	1878	70	128
charter extended	1883	73	543
<i>Rye Beach :</i>			
incorporated	1872	64	403
first meeting legalized	1881	72	459
<i>Salisbury & East Kingston :</i>			
incorporated	1846	38	84
charter amended	1848	40	26
time extended, etc.	1848	40	50
<i>Salisbury & East Kingston Extension :</i>			
incorporated	1849	41	49
<i>Sawyer River :</i>			
incorporated	1875	67	208
<i>Souhegan :</i>			
incorporated	1846	38	78
charter amended	1848	40	26
<i>Spicket River :</i>			
incorporated	1874	66	185
time extended	1883	73	451
<i>Sugar River :</i>			
incorporated 1855 — 47 : 373	1866	58	245
charter amended	1869	61	445
<i>Sullivan :</i>			
incorporated	1846	38	82
may build branches	1847	39	427
charter amended	1848	40	26
to connect with other railroads	1850	42	93
preferred stock	1855	47	357
trustees' liability	1855	47	493
investigation ordered	1856	48	167

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creditors relieved [hence Sullivan Co. R. R.]	1866	58	317
<i>Suncook Valley</i> :			
incorporated 1848 — 40 : 166	1863	55	169
may be leased	1864	56	74
commissioners to locate southern terminus	1866	58	469
charter revived	1868	60	211
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1876 — 68 : 439	1881	72	497
capital stock increased	1870	62	409
<i>Suncook Valley Extension</i> :			
incorporated	1849	41	51
capital stock increased, etc.	1870	62	393
<i>Swift River</i> :			
incorporated	1874	66	373
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incorporated	1883	73	571
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incorporated	1883	73	537
<i>West Amesbury Branch</i> :			
incorporated	1868	60	243
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<i>Whitefield & Jefferson</i> :			
incorporated	1878	70	130
capital stock increased	1879	71	300
<i>Wilton</i> :			
incorporated	1844	36	608
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REPORT
OF THE
FISH AND GAME COMMISSIONERS
OF
NEW HAMPSHIRE
TO THE
GOVERNOR AND COUNCIL,
JUNE, 1887.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1887.

REPORT.

To His Excellency Governor Moody Currier and the Honorable Council :

The Fish and Game Commissioners of the State transmit herewith the report of the work done by them for the year ending May 31, 1887.

The character and variety of fish distributed for the year 1886 consisted largely of landlocked salmon and brook trout. Observation and experience show that these are the best adapted to the waters of the State. The work of the Commission for the past few years has returned very favorable and encouraging results. The laws of protection in the breeding or close season, the largely increased number of young fry planted, have done much to restock many waters nearly barren. It requires time, patience, and perseverance to do this work, to determine by investigation the best waters for the different varieties of fish to be successfully introduced.

In planting the young fry it is as necessary and essential to place them in waters furnishing the requisite food for their support and growth as it is to restock the streams; for without proper food for the young fish the planting will result in failure.

There is one fact that is commonly lost sight of in the matter of stocking waters, and that is that all waters are not suitable for all kinds of fish and cannot be stocked with

them, and it is a useless expenditure of time and money and a waste of fish to attempt to make them live in waters which are not adapted to their requirements. Therefore we must study the habits of the fish, the character of the waters we wish to stock, and when we get them together success is sure to follow. Another point to be considered is that we cannot expect to raise much better fish than the waters they inhabit, and living on such food as is produced in such waters.

Much care has been exercised during the past two years in selecting the streams where the trout were to be placed. It had been the custom to send the fish to many applicants who asked for them and offered to see them deposited in the water. Care has also been exercised in seeing that the fish were placed at points advantageous for them. The planting for the past two years has been done mainly by the Commissioners, who were more anxious to have the planting properly done than to avoid the necessary labor of doing the same. It will not answer to deposit the small fry at a single place low down in the stream; they must be scattered about a few at a time in the upper waters on the shallows, that are natural spawning-grounds, and in the small spring runs coming into the main body of water. In such places they find natural hiding-places and an abundance of the food upon which they are to live; and as they grow larger and better able to take care of themselves they gradually drop down the stream and find new feeding-grounds and ranges better adapted to them as adult fish.

The Commissioners have sent out printed instructions this year in regard to planting and caring for the young fry.

The large increase of our native fish for distribution in the State has been accomplished with but little additional expenditure.

The number of brook trout for distribution for 1882

was 50,000; in 1883 75,000; this year it will reach over 600,000.

The establishment at Plymouth is in good condition, and the new plan in taking the trout eggs adopted by the superintendent has resulted in a large saving of eggs. So far we have never been troubled with *fungus*, that disease so fatal to young fry. But little, if any, loss was incurred in transferring the young fish from the hatchery, even when carried to the most distant parts of the State. The wanton destruction of small landlocked salmon in Hebron River compelled your Commissioners to close that stream to all kinds of fishing for three years. That river contains the finest spawning-grounds for these fish we have in the State, and it is from here that we expect to secure our supply of eggs to distribute to other waters and to keep up the supply in Newfound Lake.

REPORT OF ELLIOTT B. HODGE,

SUPERINTENDENT STATE HATCHING-HOUSES AT PLYMOUTH
AND SUNAPEE LAKE.

*To George W. Riddle, Chairman of the Board of Fish and
Game Commissioners of New Hampshire:*

In January, 1886, I received from Bucksport, Me., 550,000 Penobscot-salmon eggs, which, with the eggs taken from the Merrimack-river salmon at Plymouth, 600,000 in all, were hatched, and the young fry planted in the Pemigewasset River in May. The plant was made at various points from one to twenty miles above Livermore Falls. No loss was incurred in transferring them from the hatchery to the waters of the river. At the time the plant was made the water in the river was within one or

two degrees of the same temperature as that in the troughs from which the fry were removed.

The breeding trout in the ponds and tanks have been healthy, and no unusual loss has been incurred from disease, and none from mink or other vermin; the ponds being entirely free from water-snakes and turtles, which are so destructive to fish in many places. There are now about 10,000 trout, from four inches in length to three pounds in weight, in the different ponds and tanks, and as many of them are quite small an increase in the number of eggs may be expected in the fall of 1887.

A new floor has been laid in the hatchery, with new flooring timbers, the old one having become unsafe. All other necessary repairs have been made, and the station is in good condition. A two-inch pipe has been laid from the new spring to the house; the distance was only fifty feet and the expense small. The tile pipe from the main spring has broken twice during the winter, causing considerable trouble to find the place and repair it. I would recommend the relaying with iron pipe across the yard to the bank, a distance of some sixty feet. There are many springs in the ground in front of the house where the tile pipe is laid, and the washing away of the dirt from under the short pieces allows them to drop. The iron pipe will obviate this difficulty.

All fish-culturists have been troubled by the loss of a large percentage of unimpregnated eggs of the brook trout, in many cases as high as 10 to 15 per cent. The plan I have adopted the past two years has reduced this loss to about 2 per cent. The plan usually followed was as soon as the female came on the spawning-bed, to remove her and take the eggs. Now, in most cases this can be done, but it requires some considerable force to be used, frequently to the injury of the fish; and many of the eggs taken would not be fully developed, therefore incapable of impregnation. To overcome this trouble I remove

the females from the bed at once, and place them in boxes with wire netting for the bottom; the boxes are constructed to float with the top just level with the surface. They remain there from two to four days; by this time the eggs become separated and fully developed, and come from the fish with but little pressure. With this method I not only obtain a much greater percentage of fertilized eggs, but stronger fry.

There have been hatched and distributed from the Plymouth hatchery since my last report 314,000 brook trout, 135,000 landlocked salmon, 600,000 Penobscot salmon, 65,000 Lake Superior trout, 500,000 white fish, 10,000 California trout, as follows:

BROOK TROUT.

Keene and vicinity	.	.	.	.	.	20,000
Claremont	.	.	.	.	.	20,000
Jackson	.	.	.	.	.	15,000
Manchester, Bedford, Auburn, Goffstown, and New Boston	.	.	.	.	.	43,000
Peabody River, near Glen House	.	.	.	.	.	15,000
Fabyan's	.	.	.	.	.	10,000
Crawford	.	.	.	.	.	10,000
Hebron	.	.	.	.	.	5,000
Rollinsford	.	.	.	.	.	20,000
Seabrook	.	.	.	.	.	15,000
New Ipswich	.	.	.	.	.	15,000
Temple	.	.	.	.	.	5,000
Campton	.	.	.	.	.	5,000
Gilford	.	.	.	.	.	10,000
Canterbury	.	.	.	.	.	10,000
Acworth	.	.	.	.	.	5,000
Colebrook and Columbia	.	.	.	.	.	15,000
Washington	.	.	.	.	.	10,000
Lee	.	.	.	.	.	6,000
Hooksett	.	.	.	.	.	10,000

Hopkinton	.	.	.	.	.	.	.	10,000
Exeter	.	.	.	.	.	.	.	15,000
Franconia	.	.	.	.	.	.	.	10,000
Plymouth	.	.	.	.	.	.	.	5,000
Sandwich	.	.	.	.	.	.	.	10,000

LANDLOCKED SALMON.

Sunapee Lake, Newbury and New London	.	30,000
Newfound Lake, Hebron	.	30,000
Squam Lake, Holderness	.	20,000
Sanbornton Bay, Laconia	.	20,000
Tucker's Pond, Salisbury	.	5,000
Pleasant " Francestown	.	10,000
Stinson " Rumney	.	15,000
Little Winnepesaukee, Moultonborough	.	5,000

LAKE SUPERIOR TROUT.

Winnepesaukee Lake at Meredith and Weirs	65,000
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WHITE FISH.

Winnepesaukee Lake at Weirs	500,000
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CALIFORNIA TROUT.

Hall's Pond, Sandwich	10,000
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PENOBSCOT SALMON.

Pemigewasset River	600,000
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From the hatching station at Sunapee Lake :

LANDLOCKED SALMON.

Sunapee Lake	10,000
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BROOK TROUT.

Sunapee Lake	100,000
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The number of young fish and eggs now in the hatcheries at Plymouth and Sunapee for distribution for the spring of 1887:

Penobscot salmon	.	.	.	.	.	500,000
Brook trout	.	.	.	.	.	600,000
Landlocked salmon	.	.	.	.	.	157,000
Loch Levan trout from Scotland	.	.	.	.	.	30,000
Sáibling from Germany	.	.	.	.	.	3,000
California trout	.	.	.	.	.	10,000
Brown trout from Germany	.	.	.	.	.	5,000
Total	.	.	.	.	.	<hr/>1,305,000

Respectfully yours,

E. B. HODGE, *Superintendent.*

PLYMOUTH, March 20, 1887.

BLACK BASS.

This most excellent game fish is coming more and more into favor with our native fishermen. They begin to understand that he is not the voracious monster that he has been represented to be. The black bass is no more of a predatory fish than the common perch, and is not as destructive as the pickerel, which feeds at all seasons of the year, while the black bass does not take much, if any, food during the late fall and winter months. That veteran fish-culturist, Seth Green, says of them: "In my opinion, the black bass is one of the most valuable fresh-water fish we have in this country, and if he were to be banished from our waters, more anglers would cry for his return than for any other fish we have. And if he were a foreigner, and knowing him as well as I do, I would spare no expense to get him here."

Aside from its merits in the angler's eyes, the bass is a

very profitable fish to cultivate. It is a prolific breeder, each full-grown female raising from five to ten thousand young each year. It grows rapidly, and commands good prices in our markets.

Another great advantage that accrues to the State through the introduction of bass is that it attracts large numbers of sportsmen from other States and furnishes royal sport during the midsummer months when the State is filled with summer visitors, and is one of the great attractions that draw them here. No sportsman would think of coming here for the sake of fishing pickerel and perch; and yet this was all we had to offer them in midsummer before the introduction of the bass. They are comparatively easy to transport, adapted to most of our waters, and reproduce themselves without expense, which renders them extremely valuable as a people's fish. A lake stocked with bass will produce more fishing than with any other variety of fish. They should not be planted in waters inhabited solely by brook trout, as the majority of such waters are too small and cold, and would not furnish them with sufficient food.

As a game fish they have no superior in our waters, and few excel them as a table fish when caught in season and properly cooked.

BROOK TROUT.

As was expected, there has been a large increase in the number of eggs taken this year at Plymouth. In 1882 the number of eggs taken was only 100,000; this year more than 800,000 were secured. This increase has been brought about by gradually increasing the parent fish in the breeding-ponds, which now number about 10,000, without adding much to the expenses. It requires the same watchfulness and care to look after a few hundred trout as it does for ten thousand. We shall soon be able to supply all the young fry that the different towns may

ask for. The most encouraging reports have been received from places where the young fry have been distributed, and the continually increasing demand is proof of the wisdom of the preparation that your Commissioners have made to supply the different towns with large numbers of the young fry of this king of fishes. If the artificial propagation should be stopped, extermination will follow in all but the more inaccessible northern parts of the State.

The stocking of streams with brook trout, and the restocking of streams where this fish was already established when the State undertook the business of fish-culture, have given the greatest amount of satisfaction both to the Commissioners and the people of the State.

This fish is so popular, and deservedly so, for its food qualities, no less than for its gamy instincts and strength, that even a moderate degree of success in hatching and planting it would have been generally applauded; but the work done by the State having proved successful beyond all expectation, it has done more than anything else undertaken by the Commission to gain the confidence and good opinion of the people of the State for all branches of the fishery work. The growth of the trout has been on the average quite rapid; two years after planting in suitable waters it will grow six to eight inches in length.

Experience in fish-culture shows that artificial propagation, so far as it relates to this species of fish, has become a necessity for its preservation. It is necessary in this class of work to carry the stock fish in ponds throughout the year, and when they are ripe they are taken out, handled, and returned to the ponds again. They are thus carried, as will be seen, through the year in artificial ponds, and are fed, attended to, and cared for by the persons having them in charge. They stand confinement well, and thrive and grow under this treatment as well as in the open streams.

LAKE TROUT.

During the past three years considerable numbers of Lake Superior trout have been planted in our larger lakes. These are a more desirable variety than our native fish. Considerable effort has been made to stop the illegal destruction, during the breeding season, of this valuable fish, and to convince the parties engaged in this nefarious business that they were killing the goose that laid the golden egg. More stringent measures will be taken the coming fall to break it up entirely.

A branch hatchery like the one at Sunapee Lake is needed for Lake Winnepesaukee, devoted wholly to stocking that lake. After the first outlay the expense would be small, and we hope that the present Legislature will grant a sum sufficient to carry out this plan. The eggs of the small white fish, which is a native of Winnepesaukee, locally called "shad waiters," can be procured in almost unlimited numbers, and as this fish is the finest table fish in the lake its cultivation alone would soon repay the outlay.

BROWN TROUT.

Through the kindness of Prof. Baird, United States Fish Commissioner, we have secured a few eggs of this fine variety of the trout family. They will be kept at the hatchery for breeders. Mr. Fred Mather, of New York, says of them: "I cannot speak to highly of this handsome and gamy fish, which is destined to become a great favorite wherever introduced." It exceeds our native trout in size, sometimes reaching twenty pounds in weight, while fish of eight to ten pounds are not uncommon.

RAINBOW TROUT (*Salmo Iredale*).

The efforts that have been made to introduce this fish into the streams east of the Rocky Mountains have not

resulted, as far as the Eastern States are concerned, in any great degree of success. In many places they will do well and grow rapidly for a year or two, and then disappear. These so-called trout, in all probability, are a species of the steel-head salmon of California. If this supposition proves to be true, it will be of no use to plant them in our small streams; but they may succeed in our trout lakes and ponds.

LOCH LEVAN TROUT.

Through the kindness of Prof. J. D. Quackenbos of Columbia College, New York, we have received a present of 30,000 trout eggs from Loch Levan, Stirling, Scotland. These eggs were purchased by Prof. Quackenbos, at an expense of about \$5 per thousand, from the Howietown fishery. This trout is quite celebrated in Great Britain, and is considered the finest of all the European trout. The fry will be planted in Sunapee Lake, as this comes the nearest in size, depth, and temperature to its native habitat.

SAIBLING.

Through the courtesy of Prof. Baird 3,000 eggs of this fish have been received at Plymouth. The young fish will be kept at the hatchery for breeding purposes. This is a German trout, and is considered one of the best for our mountain lakes and ponds.

PENOBSCOT SALMON.

Since our last report, 600,000 young salmon have been planted in the head-waters of the Pemigewasset River. The eggs were furnished by the State of Massachusetts and the United States Fish Commission. Owing to the unusually low water in the Merrimack the past two or three years, the run of salmon has not been as large as was expected. Many fish that are known to have passed the

fish-way at Lawrence have been unable to reach the upper waters of the Pemigewasset. This is not owing to any defect in the fish-ways at Lowell and Manchester, but for the want of water of sufficient depth to enable them to reach the entrance to them.

LANDLOCKED SALMON.

The success that has attended the efforts to introduce this variety of the salmon family has been such as to warrant the continuance of our subscription of \$300 to the breeding establishment at Grand Lake Stream, Me., which is the only place where the eggs can be obtained.

But our success at Sunapee Lake last fall gives us hope that we shall soon be able to secure a sufficient quantity in our own State at far less expense.

For the information of parties applying for landlocked salmon, the experience of the Commission from the plants of former years proves that it is useless to introduce them into small or shallow ponds. The best results are obtained from lakes having large brooks running into them to afford the necessary spawning-places. These fish, like the brook trout, seek the large brooks for spawning purposes, and the young fish usually remain in the brook for the first year, where they can easily obtain suitable food. It has also been found that they require waters from 50 to 70 feet in depth, which gives a temperature of about 50°, and where the larger fish are found in warm weather. The Maine commissioners say that they feel it absolutely necessary that the waters should contain smelt, which is the principal food of this valuable fish, to make their introduction successful. Unless the waters contain these conditions it is useless to introduce landlocked salmon into them. In many of the large lakes of this State these conditions exist, and this is the reason why they have succeeded so well at Sunapee, Squam, and Newfound

Lakes, in which they have already begun to reproduce themselves.

LAMPER-EELS

have been quite numerous in the Merrimack River for the past two years. Mr. Thomas S. Holmes, superintendent of the Lawrence Fish-way, says: "The run of lamper-eels was the largest I have seen since the fish-way came under my charge," some twelve years ago. From May 1, 1886, to June 30, 1886, the Lawrence Fish-way was closed each day to ascertain the run of fish, and a record kept; and for sixty consecutive days lamper-eels were seen passing up through the fish-way. Thirteen days the run was small, thirty-three days a moderate run, for fifteen days the run was large, many thousands having passed through the fish-way. A large number was seen passing up through the fish-way at Amoskeag Falls. The Commissioners believe that the Merrimack River has been successfully restocked with lamper-eels, and after August 1, 1887, the end of the close season, they can be taken for food in goodly numbers.

SUNAPEE LAKE STATION.

In 1884 many complaints were made to your Commissioners regarding the illegal destruction of the trout in this lake during the breeding season.

During the months of October and November it was said that the trout came into the brooks in large numbers, where they were killed with nets, spears, guns, and clubs. An investigation was made, and the Commissioners were convinced that the complaints were well founded. It was proved beyond a doubt that it had been the custom to kill every trout that could be found either upon the spawning-beds or attempting to reach them. It was evident that something must be done in order to save the few brook trout remaining in the lake.

There were two ways of doing this. First, by placing a special warden on the lake during October and November; second, by establishing a branch hatchery. It was found that the expense of operating a hatchery would be but little more than the cost of a special guardian, while the benefit that would accrue to the lake from the large plant that would be made would more than compensate for the extra outlay.

The hatchery was built, but it was so late in the fall that but few eggs were obtained. In 1885 the work was greatly interfered with by parties who were angry at being deprived of the privilege of filling their barrels with female trout taken from the spawning-beds for winter use, as in former years; they attempted to make up for this loss by stealing the trout from the hatchery, pounds, and tanks built by the State, where the trout were confined and kept until ripe and ready to yield their eggs.

Three of these poachers were caught in the act, and punished as their crime deserved. Since that time no one has attempted to interfere with the work being done. And so marked has been the increase that in one night last season forty trout were taken weighing from one to six pounds each, and eggs enough to fill the house to its utmost capacity were easily obtained; and the number taken might have been doubled had there been room for them. The increase of trout has been so great that to reap the full benefit it will be necessary to enlarge the capacity of the house to half a million.

Twenty thousand landlocked salmon eggs were taken, and more could have been secured if there had been room for them in the house.

One advantage of the establishment of a hatchery at this lake is this: the trout that come into the brooks to spawn are carefully taken, their eggs secured, the parent fish returned to the lake, and a large plant of young fry

made each spring, while formerly the eggs were thrown away and the adult fish went into the frying-pan.

If the work of the Commission is continued, this lake, which is fast becoming one of the most popular summer resorts of our State, will afford as good fishing as can be found in New England.

The new trout mentioned in our last report, now pronounced by Dr. T. S. Bean, curator of the Department of Fishes of the National Museum at Washington, D. C., to be a variety of the *Oquassa* type, came on the spawning-beds in the lake in large numbers in October and November. There is no doubt but that this fish is a native of this lake, and the principal ground for the belief is that there are no known waters in New England except Sunapee Lake where they are known to exist.

It is clearly established that they are not the result of the small plant of blue-back trout made in 1879. While this fish has some of the markings of the *Oquassa*, many of its characteristics and habits are such as to lead to strong suspicion that it is not a true *Oquassa*. It has the hyoid teeth like the latter, but the number of scales on the lateral line and the fin-ray formula do not correspond with that of the *Oquassa*. The tail, instead of being deeply forked like the latter, is square like the brook trout. It differs from the brook trout by being a lake-spawner, never attempting to enter the streams with the latter in the fall. This singular fish has created a great interest among ichthyologists throughout the country, and many requests have been received from museums and scientists for specimens for examination. Mr. Fred Mather, of New York, who has made a careful examination of this fish, says: "I do not know what kind of a trout it is, neither have I ever seen one like it." How it came in this lake we know not, but it is there and in large numbers, and affords excellent sport to the many

fishermen that resort to this lake during the summer months.

GAME.

The law passed by the Legislature in 1885 prohibiting the exportation of game birds out of the State has worked well and done a great deal of good. It has put an end to much of the illegal snaring of the ruffed grouse or partridge, and has been the means of keeping our local markets well supplied with this excellent bird. The only thing now needed to entirely put an end to snaring is an amendment to the law making it illegal to have snared birds in possession.

The good that has been accomplished by the enforcement of the game laws is shown by the rapid increase of deer in the northern and central portions of the State. And during the past summer they have been frequently seen in Plymouth, Rumney, Ashland, and many other towns where none have been seen before for many years. If the parties who kill deer during the deep snows of winter would only let them alone for a few years they would become numerous enough to afford fine sport in the fall and early winter.

Hon. Luther Hayes, of Milton, who was appointed Commissioner in 1876 and served in that capacity for the past ten years, has done an efficient and successful work for the State. His successor is the Hon John H. Kimball, of Marlborough, appointed August, 1886.

There is a marked interest throughout the State for a more efficient enforcement of the fish and game laws. A circular was issued and sent to all of the town clerks in the State, early in March, calling their attention to the law, and requesting the election of fish and game wardens from their towns. The Commissioners are highly gratified at the result. More than 325 fish and game wardens have been elected and qualified, and have been

furnished with the laws relating thereto. Scattered as they are all through the State, they will be of great advantage in the enforcement of the laws and protection of fish and game.

Complaints have been made to the Commissioners of illegal fishing at Winnepesaukee Lake in the fall of the year by spearing lake trout while on their spawning-beds; also by setting nets and lines in the close season. Several visits have been made by the Commission, and arrangements perfected to put a stop to illegal fishing. Quite a number of the influential citizens residing on the shores of the lake have assured the Commission that they will assist them in protecting the lake. An efficient organization has just been formed for this purpose, and is known as the Carroll County Fish and Game Protective Association.

Enquiries have been made in different sections of the State in regard to the result of restocking the streams with brook trout. The following replies have been received, which are quite encouraging:

MANCHESTER, N. H., March 17, 1887.

Mr. E. B. Hodge:

DEAR SIR, — In reply to your inquiry of the 7th inst. I would say that the work of the Commission has made a most decided improvement in the fishing in the vicinity of Manchester. The catches reported by our local fishermen for the past season are in excess of anything for years, and many who have been doubters are now enthusiastic in their praises of the present policy of the Commissioners. My personal experience, covering a period of some eighteen years, fully verifies the concurrent testimony of older devotees of the sport — that our best brooks are rapidly regaining something of their former popularity and becoming prolific sources of pleasure to the angler. My opinion is that the best results and greatest satisfaction to all concerned will eventuate by placing the trout in the large brooks that are proved capable of withstanding the severest drought, and at the same time are favorable for breeding. In this vicinity the brooks best representing this class are Bowman's, Darrah, and Mentor; not slighting, of course, the smaller streams

that have stood the test of our late dry seasons. The practice lately adopted of having the distributors publish in the local papers the names of the brooks restocked meets with great favor, and removes a cause of frequent complaint. Hoping that Manchester will be favorably remembered this season, I remain

Yours respectfully,

C. W. EAGER.

KEENE, N. H., March 16, 1887.

E. B. Hodge, Esq.:

DEAR SIR, — I take pleasure in saying to you that the young trout planted here in 1885 have apparently flourished beyond the expectations of us all. Especially is this true of those put into Beaver brook, which you will remember had been taken possession of by the pond shiners. These shiners were destroyed with lime in 1884, and the following year the trout were put in and protected by law; and last summer, only about fourteen months from their introduction, all that part of the brook above the falls was as well stocked as in the old times when Sears, Frank Davis, and their contemporary anglers were wont to fill their baskets from its generous waters. So I believe it is admitted by all that the restoration of this famous brook is a complete success, and our club is duly grateful. The smaller brooks in the west part of the city have also been more prolific in trout in proportion to the number of young ones added the same year, and we hope you will be able to continue the good work in this direction the present year, and so receive the benediction of all grateful fishermen.

Very truly yours,

HORATIO KIMBALL.

CLAREMONT, N. H., March 11, 1887.

E. B. Hodge, Esq., Plymouth, N. H.:

DEAR SIR, — Yours of recent date duly received. I am unable to give you anything definite in regard to the increase of trout. I intended last spring to have looked this matter up and seen for myself whether there was an increase or not, but did not have the time to spare. I have been told by some of the boys that there were more trout in some of the restocked brooks than before. I think the dry seasons have injured the trout very much in some of the brooks.

Respectfully,

W. M. SMITH.

LEBANON, N. H., March 14, 1887.

E. B. Hodge, Esq.:

DEAR SIR, — Some five or six years ago we obtained for the town of Acworth 5,000 trout fry, and by vote of the town protected them three years. I have no doubt there have been more trout taken from the brooks in Acworth in any one of the years since they were protected than for five years previous. The first year, and even the next, the brooks were all good fishing, but they came in from all the towns around, and from outside the State, and consequently somewhat thinned them out; but I think there were more trout caught last year than any one year, previous to the stocking of our brooks, for thirty years back. I am a firm believer in the work of our Fish Commission. There is no question in regard to the usefulness of this work.

Yours truly,

JAMES A. WOOD.

PITTSFIELD, N. H., March 11, 1887.

E. B. Hodge, Esq., Fish and Game Commissioner, Plymouth, N. H.:

DEAR SIR, — I have delayed answering your esteemed favor of the 7th inst. in order to obtain reliable data from our fish wardens and sportsmen with which to give an answer of some value to your inquiries concerning the benefits derived from restocking our brooks with trout. Having talked with many of the most extensive takers of brook trout, I am much gratified to be able to inform you that the unanimous testimony is in support of the fact that there has been a "perceptible difference in the number of trout taken" since our brooks were restocked. I will be frank with you and admit that some mistakes were made in my first efforts in restocking our trout brooks. The severe and protracted droughts that annually prevailed at that time caused a loss of hundreds of trout. I have counted upwards of fifty dead trout in dry brook-beds where there had always previously and subsequently to those two or three years been plenty of water. Then, mistakes have been made by planting the trout fry in too close proximity to big trout, which ate the fry. Therefore it requires considerable discretion and familiarity with a brook in order to stock it to the best advantage, and the care exercised in planting will very materially affect the benefits to be derived from restocking our trout brooks. It seems that the results of your experience, observation, and inquiry on this matter might be very properly embraced in a circular of directions for the

benefit of those who are to plant trout fry. My experience in limited trout farming convinces me that it is best to put the fry as near the unfailing source of the brook as possible, and to place only a few in each pool. Drought in summer and freezing in winter should be considered, and occasional examinations of a brook, both before restocking and afterward, are necessary to get the best results. Dumping 5,000 trout fry into the most accessible pool is very far from stocking a brook to the best advantage. With many thanks for your kindness in the past, I am

Very truly yours,

GEORGE R. DRAKE.

NEW IPSWICH, April 7, 1887.

George W. Riddle, Esq.:

DEAR SIR, — Yours duly received and contents noted. I did not myself catch a trout in New Ipswich in 1886, but it was said that there were more trout caught in 1886 than for many years before. Mr. Barnett reports that the trout placed in his brook have done well, and I understand that others better informed than myself have the same reports to make in regard to the trout placed in other brooks. The plant of 1884 was, as you say, a failure, but we hope for good results from the 1885 and 1886 plants; and hope it will be continued long enough to show the results plainly.

Yours truly,

FRANK W. PRESTON.

MANCHESTER, N. H., April 4, 1887.

DEAR SIR, — Your letter got mislaid, or an answer would have been sent before. In regard to the benefits arising from stocking the brooks in this vicinity with trout, it is the universal testimony that good has come from it, with the prospects for future catches very promising. Different conditions and circumstances, of course, influence one way and another the egg and fish development, but the results on the whole have been quite satisfactory.

Yours very truly,

ARTHUR E. CLARKE.

TEMPLE, N. H., April 5, 1887.

George W. Riddle, Fish and Game Commissioner :

DEAR SIR, — Trout fishing in Temple was good last season, better than for a long time, and I know it was better for the restocking. I was interested in the young fry, and visited often several of the places where they were deposited. They did well all summer, grew fine, and last fall were quite good-sized trout. I could hardly realize that they grew so fast. I think the fishing will be better this year, as the brooks were not as dry last summer as they have been summers before. I hope the work will go on, and shall be pleased to do all I can; and in the end if I don't get my share of the trout and game, shan't find any fault. If I can at any time be of any service to the cause, please let me know, and you will greatly oblige.

JACOB KENDALL.

We desire to express thanks to the Hon. Spencer F. Baird, United States Fish Commissioner, for a large and valuable contribution of eggs received from him; also to the press of New Hampshire, which has done so much to create a healthy public opinion, and to the railroads for assisting in the distribution of fish over their respective lines.

RECOMMENDATIONS.

An appropriation for a branch hatchery on Lake Winnepesaukee, and for repairs and enlargement at Sunapee and Plymouth.

An amendment making the having in possession snared grouse or quail illegal.

An amendment making the having in possession any fish protected by law during the close season, and any person found on any lake, river, or pond with spears, jacks, lights, or nets in his possession, to be *prima-facie* evidence of the violation of the law.

GEORGE W. RIDDLE,
ELLIOTT B. HODGE,
JOHN H. KIMBALL,

Fish and Game Commission.

LIST OF FISH COMMISSIONERS AND OFFICERS IN THE UNITED STATES AND CANADAS.*

NAMES AND ADDRESSES OF COMMISSIONERS OF FISHERIES.

UNITED STATES, AT LARGE :

Prof. Spencer F. Baird, Washington, D. C.

Alabama :

Col. D. R. Hundley, Madison.

Hon. Charles S. G. Doster, Prattville.

Arizona :

J. J. Gosper, Prescott.

Richard Rule, Tombstone.

J. H. Taggart, Business Manager, Yuma.

Arkansas :

James H. Hornibrook, Little Rock.

H. H. Rottaken, Little Rock.

California :

R. H. Buckingham, President, Sacramento.

Hon. A. B. Dibble, Secretary and Treasurer, Grass Valley.

Thos. J. Sherwood, Marysville.

Colorado :

John Pierce, Denver.

Connecticut :

Dr. Wm. M. Hudson, Hartford.

Robert G. Pike, Middletown.

James A. Bill, Lyme.

Delaware :

Enoch Moore, Wilmington.

* Revised and corrected to September 1, 1886, by "Forest and Stream."

Georgia :

Hon. J. T. Henderson, Commissioner of Agriculture, Atlanta.
Dr. H. H. Cary, Superintendent of Fisheries, LaGrange.

Illinois :

N. K. Fairbank, President, Chicago.
S. P. Bartlett, Secretary, Quincy.
Maj. George Breuning, Centralia.

Indiana :

Enos B. Reed, Indianapolis.

Iowa :

E. D. Carlton, Spirit Lake.

Kansas :

S. Fee, Wamego, Pottawatomie county.

Kentucky :

Wm. Griffith, President, Louisville.
P. H. Darby, Princeton.
John B. Walker, Madisonville.
Hon. C. J. Walton, Munfordville.
Hon. John A. Steele, Midway.
W. C. Price, Danville.
Dr. W. Van Antwerp, Mt. Sterling.
Hon. J. M. Chambers, Independence, Kenton county.
A. H. Goble, Catlettsburg.
J. H. Mallory, Bowling Green.

Maine :

E. M. Stilwell, Commissioner of Fish and Game, Bangor.
Henry O. Stanley, Commissioner of Fish and Game, Dixfield.
B. W. Counce, Commissioner of Sea and Shore Fisheries, Thomaston.

Maryland :

G. W. Delawder, Oakland.
Dr. E. W. Humphries, Salisbury.

Massachusetts :

E. A. Brackett, Winchester.
F. W. Putnam, Cambridge.
E. H. Lathrop, Springfield.

Michigan :

Dr. J. C. Parker, Grand Rapids.
John H. Bissell, Detroit.
Herschel Whitaker, Detroit.
(W. D. Marks, Superintendent, Paris.)
(A. J. Kellogg, Secretary, Detroit.)

Minnesota :

First District — Daniel Cameron, La Crescent.

Second District — Wm. M. Sweney, M. D., Red Wing.

Third District — Robert Ormsby Sweeny, President, St. Paul.
(S. S. Watkins, Superintendent, St. Paul.)

Missouri :

J. G. W. Steedman, M. D., 2,803 Pine street, St. Louis.

Gen. J. L. Smith, Jefferson City.

H. M. Garliech, St. Joseph.

Nebraska :

W. L. May, Fremont.

R. R. Livingston, Plattsmouth.

B. E. B. Kennedy, Omaha.

Nevada :

W. M. Cary, Carson City.

New Hampshire :

George W. Riddle, Manchester.

E. B. Hodge, Plymouth.

John H. Kimball, Marlborough.

(E. B. Hodge, Superintendent.)

New Jersey :

Richard S. Jenkins, Camden.

William Wright, Newark.

F. M. Ward, Newton.

New York :

Hon. R. Barnwell Roosevelt, President, 17 Nassau street, New York.

Gen. Richard U. Sherman, Secretary, New Hartford, Oneida county.

Eugene G. Blackford, Fulton Market, New York.

William H. Bowman, Rochester.

Superintendent — Seth Green, Rochester.

Secretary — H. H. Thompson, Post-office Box 25, New York.

Ohio :

C. V. Osborn, President, Dayton.

A. C. Williams, Secretary, Chagrin Falls.

H. P. Ingalls, Huntsville.

Jno. Hofner, Bellaire.

C. W. Sadler, Sandusky.

Pennsylvania :

John Gay, President, Greensburg.

H. H. Derr, Secretary, Wilkesbarre.

Arthur Maginnis, Swift Water, Monroe county.

A. M. Spangler, Corresponding Secretary, 512 Commerce street,
Philadelphia.

Augustus Duncan, Treasurer, Chambersburg.

Charles Porter, Corry.

Rhode Island :

John H. Barden, Rockland.

Henry T. Root, Providence.

Wm. P. Morton, Providence.

South Carolina :

Hon. A. P. Butler, Commissioner of Agriculture, Columbia.

Tennessee :

W. W. McDowell, Memphis.

H. H. Sneed, Chattanooga.

Edward D. Hicks, Nashville.

Utah :

Hon. John T. Caine, Salt Lake City.

Vermont :

F. H. Atherton, Waterbury.

Herbert Brainerd, St. Albans.

Virginia :

Col. Marshall McDonald, Berryville.

Washington Territory :

Albert T. Stream, North Cove, Pacific county.

West Virginia :

C. S. White, President, Romney.

W. A. Manning, Secretary, Talcott.

F. J. Baxter, Treasurer, Braxton Court-house.

Wisconsin :

The Governor, *ex officio*.

Philo Dunning, President, Madison.

C. L. Valentine, Secretary and Treasurer, Janesville.

J. V. Jones, Oshkosh.

A. V. H. Carpenter, Milwaukee.

Mark Douglass, Melrose.

Calvert Spensley, Mineral Point.

(James Nevin, Superintendent, Madison.)

Wyoming Territory :

Otto Gramm, Laramie.

(Dr. W. N. Hemt, Cheyenne, is Commissioner for Laramie county, and B. F. Northington, Rawlins, is Commissioner for Carbon county.)

CANADA, AT LARGE :

Hon. John Tilton, Deputy Minister of Fisheries, Ottawa, Ontario.
Province of New Brunswick :

W. H. Venning, Inspector of Fisheries, St. John.

Province of Nova Scotia :

W. H. Rogers, Inspector, Amherst.

A. C. Bertram, Assistant Inspector, North Sydney.

Province of Prince Edward's Island :

J. H. Duvar, Inspector, Alberton.

Province of Quebec :

W. Wakeham, Inspector, Lower St. Lawrence and Gulf Division,
Gaspé Basin.

Province of British Columbia :

Thos. Mowat, Acting Inspector, New Westminster.

Province of Manitoba and Northwest Territories :

Alex. McQueen, Inspector, Winnipeg, Manitoba.

S. Wilmot, Superintendent of Fish-Culture, Newcastle, Ontario.

REPORT
OF THE
STATE LIBRARIAN

TO THE
NEW HAMPSHIRE LEGISLATURE

FOR THE YEAR ENDING
MARCH 1, 1887.

MANCHESTER:
JOHN B. CLARKE, PUBLIC PRINTER.
1887.

OFFICERS.

WILLIAM M. CHASE, Esq., }
HON. WILLIAM L. FOSTER, } *Trustees.*
PROF. AMOS HADLEY, }
WILLIAM H. KIMBALL, *Librarian.*

REPORT.

OFFICE OF THE STATE LIBRARIAN,
CONCORD, March 1, 1887.

To the Honorable Senate and House of Representatives, State of New Hampshire :

In my last annual report mention was made of a designed method, authorized by the Governor and Council, to dispose of a portion of the books less needed in the library.

This design has been accomplished, and it is found that some three thousand volumes, many of which were before on the floor of the library room or doubled on the shelves, are placed in this new apartment. This is found to be an important temporary relief, as considerable shelving room is thus gained in the regular library apartment; and by re-ordering the books throughout on the lower floor, very limited openings were generally made, such as were necessary to the orderly disposal of acquisitions to the library. These open spaces are none of them extensive, and a portion of them are already nearly closed, so rapidly do the books accumulate by exchange and otherwise.

Such methods of relief seem now to have come to an end, which can hardly be regretted, for a state library scattered into more than four different apartments cannot be managed consistently with the involved interests. Even as it is, there is an inevitable lack of proper facilities, not

only for desired use of the books, but for their due increase and preservation.

In such condition of affairs it must be evident that no comprehensive and orderly system of library management is possible ; but it is thought that there cannot be much short of twenty-five thousand volumes that ought to be at hand in order to realize such system and make the library fairly useful. The regular library apartment was designed by the architect to shelve fifteen thousand volumes, but there are probably about two thousand more than that now on the shelves, considerable additions in shelves having been made, and a doubling of books on some of the wider shelves being practised.

I thus try to specify these various conditions, in order that it may be seen how wise and needful was the move for a new library structure that was made by the Legislature of 1881, but which move has thus far come to none of the practical results then so clearly shown to be necessary.

As this matter now stands, it seems to me that I may repeat the following passages from my report to the Legislature of 1885, as pertinent to the occasion :

“ The subject of ‘ the enlargement of the state library ’ was brought before the Legislature of 1881, and received the careful attention of that honorable body. A special joint committee of twenty-five members was appointed to investigate and report upon the subject. This committee made a thorough investigation, and its members were unanimous regarding the immediate need of such enlargement. A joint resolution, passed without dissent, referred the matter to the Governor and Council, ‘ who are hereby requested to have prepared plans and estimates for a new state library building, or additions to the present State-house, and to submit their report to the next Legislature.’ The Governor and Council, after giving all due care to the matter, reported favorably to the Legislature of 1883,

submitting various plans and estimates; but the various stirring interests that ruled legislation at that time crowded this subject on to the last days of a long and wearisome session, where it quite inevitably fell to the ground.

“The matter presses again with augmented force, and will continue to press till it becomes settled according to the manifest needs. I most earnestly ask your attention to the comprehensive report of the joint special committee of the Legislature of 1883; and also to the impressive report of the Governor and Council at the same time (see House Journal, 1883, pages 986–989, and also pages 1189–1199).

“In view of all these testimonies, with the addition of such investigations as your honorable bodies please to make, it is hoped you will not fail to make a response befitting the urgent conditions.”

The movements regarding this matter by the Legislature of 1885 being found of no practical account, the subject will doubtless be renewed before your honorable assemblies, when it is hoped the importance of the occasion will impress you and lead to favorable results.

There has been no sale of geological sets since my last report.

Sales from other surplus stock, with last year's	
balance, amount to	\$129 67
I have paid for books, periodical subscriptions,	
binding, and incidentals	121 65
	<hr/>
Balance carried to new account	\$8 02

ADDED BY REGULAR RECEIPTS.

FROM ALABAMA.

Supreme Court Reports, vols. 77, 78	2
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FROM ARKANSAS.

Supreme Court Reports, vol. 45	1
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FROM COLORADO.

Supreme Court Reports, vol. 8	1
Session Laws, 1885	1

FROM CALIFORNIA.

Supreme Court Reports, vols. 66, 67	2
Catalogue of the State Law Library	1

FROM CONNECTICUT.

Supreme Court Reports, vol. 53	1
Public and Private Acts, 1886, duplicated (pamphlets)	4
State Register and Manual, 1886	1
Agriculture and Experiment Station Report, 1885 .	1
House and Senate Journals, 1886	2
Legislative Documents, 1886, vols. 1, 2	2

FROM CANADA.

Supreme Court Reports, vols. 10, 11	2
Ontario Court Reports, vols. 8, 9, 10, 11	4
Statutes of Ontario, 1886	1
Statutes of Quebec, 1886	1
Statutes of Canada, 49th Victoria, 1886	1
Journals of the House and Senate, vol. 20, 1886 .	2
Sessional Papers, vol. 18. Nos. 1-87, 1884-85 .	1
Sessional Papers (Parliamentary), vol. 19. Nos. 1-12, 1886	12
Northwest Census Reports, 1885	1
Geological and Natural History Survey, 1885 . .	1
Geological and Natural History Pocket Map, 1885 .	1
Dominion Annual Register, 1884-85	2
Studies of Plant Life in Canada, by Mrs. C. P. Traill	1

FROM DELAWARE.

Supreme Court Reports, vol. 5, Houston . . .	1
Chancery Court Reports, vol. 4 . . .	1

FROM DAKOTA TERRITORY.

Court Reports, vol. 2	1
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FROM GEORGIA.

Court Reports, vols. 72, 73, 74	3
Session Laws of Georgia, 1884-85, 1886	2

FROM ILLINOIS.

Court Reports, vols. 111, 112, 113, 114, 115	5
Journals of the House and Senate, 1885	2

FROM INDIANA.

Court Reports, vols. 103, 104, 105, 106	4
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FROM IOWA.

Court Reports, vols. 65, 66, 67, 68	4
Laws of Iowa, 1886	1
House and Senate Journals, 1886	2

FROM KANSAS.

Court Reports, vol. 35	1
Laws of Kansas, 1886	1
First Annual Report State Board of Health, 1865	1
Third Annual Report of Railroad Commissioners	1
Minutes of the Third Annual Meeting of Kansas Bar Association (pamphlet)	1
A Revised Catalogue of the Birds of Kansas	1
House and Senate Journals, 1886	2
State Librarian's Report (pamphlet)	1

FROM LOUISIANA.

Court Reports (Louisiana Annual), vols. 36, 37	2
Acts of Louisiana, 1886	1
Catalogue of Louisiana State Library, 1886	1
Journals of the Louisiana House and Senate, 1886	2

FROM MAINE.

Court Reports, vol. 77	1
Agriculture of Maine, 1884	1
Public Documents, 1885	2
Legislative Documents, 1885	1
"Maine, Present Condition of the State" (pamphlet)	1

FROM MASSACHUSETTS.

Court Reports, vols. 140, 141	2
Acts and Resolves of the Province of Massachusetts Bay, vol. 5	1
Public Documents of Massachusetts, 1885, vols. 1-4	4

FROM MISSISSIPPI.

Court Reports, vol. 63	1
Laws of Mississippi, 1886	1
Department Reports, 1886	1
House and Senate Journals, 1886	2

FROM MICHIGAN.

Court Reports, vols. 55, 56, 58	3
Joint Documents, 1884, vols. 1-4	4
Farm Statistics, 1884 (unbound)	1
Auditor-General's Report, 1884	1
Pioneer Collections, vols. 7, 8	2
Third Labor Commissioner's Report, 1884	1

STATE LIBRARIAN'S REPORT.

9

Sixteenth Insurance Report	2
Horticultural Report, 1885	1
Public Instruction Report, 1885	1
Agricultural Report, 1885	1
Mineral Resources, Report 1885 (pamphlet)	1
Mineral Statistics, 1884 (pamphlet)	1
Eighteenth Annual Registration Report	1
Board of Health Report, 1885	1

FROM MARYLAND.

Court Reports, vols. 63, 64	2
Laws of Maryland, 1886	1
Archives of Maryland, 3 vols., 1636-1676	3
House and Senate Journals, 1886	2
House and Senate Documents, 1886	1
Index to Maryland Decisions	1

FROM MISSOURI.

Supreme Court Reports, vols. 83, 84, 85, 86, 87	5
Court of Appeals Reports, vols. 17, 18, 19, 20, 21, 22	6

FROM MINNESOTA.

Court Reports, vols. 33, 34	2
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FROM NEBRASKA.

Court Reports, vols. 17, 18, 19	3
Session Laws, 1885	1
Transactions and Reports State Historical Society, vol. 1	1
Senate and House Journals, 1885	2

FROM NEW JERSEY.

Law Reports, vol. 47	1
Equity Reports, vols. 39, 40	2

Laws, 1886	1
Legislative Manual, 1886	1
Geological Survey, vol. 1	1
Senate and Assembly Journals, 1886	2
Corrected Index (pamphlet)	1
Legislative Documents, 1886, vols. 1-3	3
New Jersey Archives, vols. 9, 10	2

FROM NEVADA.

Court Reports, vol. 16	1
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FROM NEW HAMPSHIRE.

By the Secretary of State :

Two copies General Laws	2
Hammond's Historical Papers, vol. 11 (5 copies)	5
Hammond's Historical Papers, vol. 12 (11 copies)	11
Hammond's Historical Papers, vol. 13 (6 copies)	6
Hammond's Historical Papers, vol. 14 (5 copies)	5
Hammond's Historical Papers, vol. 15 (11 copies)	11
Provincial Papers, vol. 10 (5 copies)	5
City Reports of Manchester, 1880, 1883; Docu- ments, 1881	3
Two copies Index to New Hampshire Laws; one copy interleaved	2
Vol. 63 New Hampshire Reports	1
County Reports, 1886 (8 copies)	8
Reprint of New Hampshire Province Laws, 1696-1725 (300 copies)	300
Dedication of Statue of Daniel Webster (2 copies, unbound)	2

FROM NEW MEXICO.

Court Reports, vol. 1	1
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FROM NORTH CAROLINA.

Court Reports, vols. 93, 94	2
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FROM NEW YORK.

Supreme Court Reports, vols. 44, 45, 46, 47, 48 .	5
Court of Appeals Reports, vols. 100, 101, 102 .	3
Session Laws of New York, 1886	1
Session Laws New York, 1777-1784, vol. 1, and 1785-88, vol. 2 (reprint)	2
Senate Documents, 1885, vol. 6	1
Senate Documents, 1886, vols. 1-6	6
Assembly Documents, 1885, vol. 7	1
Assembly Documents, 1886, vols. 1-10	10
Senate and Assembly Journals, 1886	3
Natural History of New York, vol. 24	1
Thirty-second State Museum Report (unbound) .	1
Sixty-eighth Annual Report of Trustees State Li- brary (unbound)	1
First Annual Report Forestry Commission . . .	1
Ninety-ninth Regent's Report, 1886	1
New York and Pennsylvania Boundary Commission Report, 1886 (unbound)	1

FROM OHIO.

Court Reports, "Ohio State," vol. 43	1
Executive Documents, vols. 1, 2, 1885	2
Laws of Ohio, 1886	1
Senate and House Journals and Appendix . . .	3
Roster of Ohio Soldiers, vol. 2	1
Ohio Statistics, 1885	1

FROM OREGON.

Court Reports, vol. 12	1
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FROM PENNSYLVANIA.

Court Reports, vols. 106, 108, 111, 112	4
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FROM RHODE ISLAND.

Acts, Resolves, and Reports, 1885-86	1
Rhode Island Manual, 1886-87	1

FROM SOUTH CAROLINA.

Court Reports (Shand's 22, 23)	2
Laws, 1885	1

FROM TENNESSEE.

Court Reports (Lea 15)	1
Acts of Tennessee, 1885; Regular and Extra Session	2

FROM TEXAS.

Court Reports, vols. 64, 65	2
Court of Appeals Reports, vols. 19, 20, 21	3

FROM UNITED STATES GOVERNMENT.

Interior Department:

Smithsonian Institute Report, 1884	1
Report of the Commissioner of Education, 1883-84 (pamphlet)	1
Special Report Bureau of Education, part 1, (pamphlet)	1
Historical Account of the Mineral Wealth of Mexico (paper)	1
Study of the Various Products of the Mexican Agave, "Century Plant" (paper)	1

Geographical and Statistical Sketch of the United States of Mexico (paper)	1
The Cotton Plant of Mexico (paper)	1
Notes on the Cultivation of Certain Plants in Mexico (pamphlet)	1
Trade of the Port of Vera Cruz (pamphlet) . .	1
Bureau of Labor, First Annual Report of the Commissioners, 1886	1
Congressional Documents Forty-seventh and Forty-eighth Congresses	46
Congressional Record, vol. 17, parts 1, 2, 3, 4, 5	5
Bureau of Education Circular, No. 1, 1886 (pamphlet)	1
Patent-Office Report, 1885 (paper)	1
Patent-Office Official Gazette, 1886, vols. 34, 35, 36, 37	4
Patent-Office Drawings and Specifications, December, 1884, to March, 1886, inclusive .	25

War Department:

War of Rebellion, Official Records Union and Confederate Armies; Series One, vol. 15, 1 part; vol. 16, 2 parts; vol. 17, 2 parts; vol. 18, 2 parts	7
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Navy Department:

Astronomical and Meteorological Observations, 1882	1
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Treasury Department:

Finance Report, 1885, vols. 1, 2	2
Report on Life-Saving Service for 1885 . . .	1
Report of the Comptroller of the Currency .	1

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SUMMARY.

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Respectfully submitted.

WILLIAM H. KIMBALL,
State Librarian.

NEW HAMPSHIRE AGRICULTURE.

FIFTEENTH ANNUAL REPORT

OF THE

BOARD OF AGRICULTURE

FOR THE YEAR

FROM JUNE 1, 1883, TO JUNE 1, 1886.

By JAMES O. ADAMS, SECRETARY.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1886.

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BOARD OF AGRICULTURE.

ORGANIZED AUGUST 28, 1870.

MEMBERS.

MOSES HUMPHREY, <i>Chairman</i>	.	.	.	Concord.
JAMES O. ADAMS, <i>Secretary</i>	.	.	.	Boscawen.*
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Messrs. Humphrey and Mason were chosen their own successors, and George S. Philbrick has succeeded C. W. Hackett in Belknap county. For the term commencing June, 1886, Joseph Farnum, of Peterborough, has been appointed successor to D. H. Goodell, and Jason S. Perry, of Rindge, succeeds George K. Harvey.

* Post-office address, Concord.

STANDING COMMITTEES FOR 1886-87.

The secretary being *ex-officio* a member of each.

Finance. — Messrs. Humphrey and Parker.

Horses. — Messrs. Whittemore and Farnum.

Neat Cattle. — Messrs. Perry and Carr.

Sheep, Swine, and Poultry. — Messrs. Lyman and Mason.

The Dairy. — Messrs. Parker and Whittemore.

Diseases of Animals. — Messrs. Mason and Philbrick.

Farm Machinery. — Messrs. DeMeritte and Humphrey.

Farm Products. — Messrs. Farnum and DeMeritte.

Experimental Work. — Messrs. Philbrick and Lyman.

Miscellaneous Matters. — Messrs. Carr and Perry.

AGRICULTURAL ROOMS,
CONCORD, N. H., May 31, 1886.

To His Excellency the Governor :

It is required by statute authority to place the report of the Board of Agriculture in the hands of the public printer by the first day of May, annually. The fifteenth volume, now presented, is only technically prepared at this date. Though the secretary has the outlines of the report in readiness, there is much detail of farm-work, experiments, trials of new machinery, and most of the studied and valuable papers that will occupy these pages yet to be collected. They are in the hands, if not in the heads, of their authors and are secured for the public only through the repeated and persistent efforts of the secretary. There are now in preparation, soon to be perfected, a number of papers whose matter has been discussed at the winter meetings, and which will be presented in a far better form than they would have been, except under the direction of their authors; others still, on practical farm topics, or those closely allied to our agricultural interests, will find a welcome place on these pages and at the farmers' homes.

The delay which has thus been caused in the printing will admit much fresh material, and perhaps lead the reader to charge the secretary with admitting articles not in chronological accord with the date of the preface. They will, however, bear the evidence of a more careful preparation and be more acceptable to the people in whose interests they are prepared.

JAMES O. ADAMS, *Secretary.*

REPORT.

THE WORK OF THE YEAR.

OUR working year commences with the opening of the harvest, or rather more definitely and earnestly, with the last gathering in of the year.

The first annual duty has been a meeting of the members for free intercourse regarding the work required in the several counties, and the consideration of topics most important and best adapted to the different sections of the state.

The annual meeting for the year covered by this report was held the first of September, 1885, at the Manchester House, Manchester, at the time of the annual state fair.

The board was largely represented, and favorable reports were made from the several counties. Dr. Hackett, of Belknap county, whose health has prevented him from doing the work he is well qualified to execute, was present and expressed a deep interest in the proceedings, but took occasion to say that he could no longer co-operate with his fellows in the work, and that he had notified the executive of a desire to be relieved from further service. It will be perceived that his successor was appointed a few weeks later. No new members were accredited at this meeting, but two of the oldest and original members, Mr. Humphrey and Dr. Mason, one being seventy-eight years old, and the other close approaching seventy, brought evidence of reappointment by the governor and council, to the gratification of every member present.

Mr. Humphrey was unanimously re-elected chairman, and Mr. Adams was re-elected secretary. The appointment of

standing committees to act with the secretary on various matters was referred to the chairman and secretary, and when fully completed they were organized as reported on a preceding page of this volume.

A variety of topics was brought before the board and carefully considered. It was reported that those communities where meetings of the board had been held were, with scarce an exception, repeatedly giving invitations to "come again," guaranteeing full attendance, while those towns which had never been visited manifested but little interest. It was decided that such towns needed all the more attention with the view to creating more earnestness in the work of the farm. It was generally admitted that the course adopted in Coos county, with a wide territory and a sparse population, of going with a small force to the small towns, and those remote from centers of trades, was the most profitable. It has been customary to hold from four to six meetings each year in such places as would give an audience, even though small. In a single week meetings have been held at Stark, Milan, Berlin, Gorham, Shelburne, Randolph, Jefferson, and Whitefield; and at another time at Northumberland, Groveton, Colebrook, Stewartstown, Clarksville, and Errol; this plan was approved and recommended by the board. It was deemed advisable to pass by the large villages, except on special occasions, but by no means to neglect any small farming town which would open its town hall, church, or schoolhouse to the board.

The present management of fairs was considered, and while the board possesses no authority to direct, the members thought it their duty and right to lend their aid in supporting well conducted exhibitions. It was admitted that a majority of these annual shows had degenerated, and were too often mere "horse races," locations for "pools," liquor selling, and fortune wheels, yet it was maintained that some yet sustained good order and were free from immoral influences. Among those specified as worthy of patronage, the Upper Coos seemed to be without a rival. The Kearsarge was also commended, and the East Canaan fair. Those held by most of the towns, recently, are generally well conducted. Sullivan county has taken the lead for a few years in sustaining good fairs at Newport, Grantham,

Acworth, and other places. The former fairs at Derry and Chester, Center Harbor and Moultonborough, have had a good influence, as have also those at Canterbury, Salisbury, and other places we might name.

The board indorse those which have been under moral restraint, such as have been conducted by farmers and mechanics, but condemn such as have been run in the interest of the sportsman, the politician, and the "dead beat."

They also, as they have usually done, indorsed the principles of the grange, and expressed a desire for mutual co-operation in every work that will aid the tiller of the soil.

The usual number of meetings has been held during the year, and they have been well attended. These have been freely reported in the weekly journals, and have anticipated our official record at the farmers' homes. And here we may with great propriety acknowledge the valuable co-operation of the newspaper press throughout the state.

We purpose to omit reports of these meetings, because the occasion which produced them has long gone by, and we believe we can occupy these pages with fresher and more important matters.

SPECIAL PAPERS.

CONSIDERED AT MEETINGS OF THE BOARD.

GEOLOGICAL DEVELOPMENT.

BY JUSTIN E. BURBANK.

THE territory of our state is not extensive in comparison with that of many others. A little over nine thousand square miles is all that New Hampshire can call her own. This does not allow her the privilege of boasting of her imperial domain. Her length is one hundred and eighty miles, her average width fifty-two miles, covering a little more than two and one half degrees of latitude, and less than a degree of longitude.

Within these somewhat narrow limits is included a great variety of surfaces and of soils, and much diversity in respect to climate and altitude. The elevation of the different localities within the boundaries of the state rises from the level of the sea to six thousand two hundred and ninety-three feet. Almost every foot of this variation is represented by the height of some particular area of land.

In climatology, also, great differences manifest themselves. From the highest mean annual temperature of 48° Fahrenheit, the mercury sinks in the coldest region to 25° for the yearly average. Mountain and seashore are ours without passing any state line. The roar of the Atlantic and the raging tempest on the top of Mount Washington may both be experienced by the traveler on the same day without crossing over any foreign soil. No other state in our Union, probably nowhere in the world, contains so great diversity in so little space.

At first we are inclined to group all these conditions together, and represent them as springing out of the physical geography of

the state. But the physical geography of any specified territory rests upon its geology as a foundation.

Geological development in its final fixed result determines the main features of the geography of a country. Geological influences were at work far back in the history of material things, and carved out the continents as they now exist, fixed the bounds of ocean at its present shore, dotted the sea with islands, and adorned the landscape with silver streams that conduct along their highways the returning waters to their natural bed. We cannot trace matter back to its original creation, and see it in its primeval form launched into existence. Human knowledge has a limit put upon it. Clouds of eternal mystery rest upon some things, and it is vain for us in our blindness to endeavor to remove or to penetrate them.

The study of the scientific geologist, nevertheless, devoted to the hardened surface of the earth, is able to infer with some degree of certainty, that there was a period when what we call the solid rock was in a state of fusion, or at least in a plastic condition, through the influence of heat, and that then it took the shape which it now presents to us, and cooled into its apparently unchangeable form. Further back than this, science furnishes no guide, and conjecture is essentially of no value in such a field.

From the shape our rock-ribbed state has assumed, we may infer some of the laws of the forces which raised its surface from out the unseen depths. The power that brought the White Mountains from below would appear to have been applied in a lateral direction, and, subsequently, the ridges raised by this force were subjected to some mighty propelling influence, acting in a direction nearly at right angles with the first. We cannot determine whether it was steam or expanding gases, or mighty solid bodies coming into collision, and in their mutual crash raising some masses and depressing others, breaking some accumulations of matter and driving others together. All such conflicts were pre-historic, and probably anterior to animal or vegetable life. The varied action of these spent forces has left as a legacy for our contemplation and study a surface geology of as much interest as any upon the face of the globe.

In the application of geology, as far as it has become a trust-

worthy science, the leader in the late state survey has accomplished a work of no small value to the student who is interested in acquiring knowledge, and to the native of our soil, who loves the place of his birth, and who desires to thoroughly understand all that appertains to it, because it is his own home.

New Hampshire is geologically as old as any land on this continent. It belongs to what is styled the Eozoic period, the earliest of the four great periods into which the geological era is divided. Though the term, through its etymology, indicates the dawn of life, the lower division of the Laurentian section is azoic, or without life. This embraces the porphyritic gneiss that is so common in the elevated ridge that divides the valley of the Connecticut from that of the Merrimack.

This land, the first to appear within our limits, rose out of the wide-spreading ocean in the shape of islands, about thirty in number, of a variety of sizes and forms. The largest was somewhat irregular in its outline, and reached from Groton, on the north, to Jaffrey, in the south. In its widest portion, it extended from Hopkinton, on the east side, to Washington, on the west. The northern and southern portions were much narrower, decreasing each to nearly a point.

The most easterly example of this porphyritic gneiss formation was, at the commencement of this primitive period, a very limited area in the town of Seabrook, touching the Atlantic Ocean, bordering on the state line, where, in its sublime solitude, it looked forth upon the waste of waters and beheld nothing but desolation in the midst of the billowy sea, the nearest land being another small island in what is now the town of Pelham. The most northern land was in the town of Whitefield. The White Mountains, except a small portion in the town of Franconia, do not appear.

The highest summit reaches an altitude of 4,300 feet. In the Groton and Jaffrey area, the greatest elevation is seen in Mount Lovewell, 2,487 feet, and Mount Sunapee, 2,683. This area, at its western limit, coincides mainly with the dividing elevation between the valley of the Connecticut and that of the Merrimack.

The above sketch shows the dry land of New Hampshire at the close of the Laurentian period. The succeeding Montalban

period of the Eozoic era presents an addition of a much larger area to the extent of the state. At the close of this period nearly two thirds of it were out of water. The eastern boundary was a line between Dover and Lake Umbagog. The southern boundary was a line between Hinsdale and Brookline. The southeast limit of the development of this period and the preceding one was a nearly straight line connecting Brookline and Dover. The western limit was a line nearly parallel with the Connecticut river, distant from it about the width of one line of towns, and reaching from the Massachusetts boundary to Haverhill. The northwestern limit was a nearly straight line across the state diagonally from Haverhill to Lake Umbagog.

The Montalban formation seems to be joined to the Laurentian as to a nucleus. It includes several different varieties of the gneiss rocks, as the Bethlehem group, the lake gneiss formation, the White Mountain and the Franconia groups. Within this last are included the granites of Concord, Plymouth, and many other towns in the state, which are very valuable for purposes of architecture and of art. The entire area gives abundant proof of metamorphic action.

The study of these rocks in all their rich variety gives rise to many an interesting problem, which the geologist must study carefully in order to arrive at a satisfactory solution.

The Labrador, the next period, is marked by the breaking forth of liquid masses of molten matter, produced by subterranean heat, and ejected, without doubt, in consequence of some depression in the surrounding solid masses of the preceding period. This melted matter, on cooling, constituted the granite and syenite that include a part of the White Mountains and an extensive range of territory between Franconia and Conway. The Labrador period, while it produced such important changes, did not add largely to the extent of the land of New Hampshire.

The period following this was the Huronian, and without doubt the dry land of the state assumed during its continuance a settled, solid condition, and may have been covered with a light clothing of green vegetation. It was the era of the deposit of the precious metals of New Hampshire, and of some other minerals.

The close of this period gave us, rising upon the surface of the ocean, an area of varying width, extending from Cambridge, on the north, west to the state line, and along the Connecticut river to Orford, on the south. The first division of the period was that of the deposition of copper and iron, with a slight admixture of gold particles. Then followed the formation of a fine siliceous mud, with soapstone, dolomite, and serpentine. Afterwards appeared a conglomerate of quartz pebbles, with some gold mechanically intermingled.

After the Huronian period, which made visible, with what had before appeared, nearly the whole surface of the state, followed an era which deposited upon a formation long before brought into existence what was designated the schists of Rockingham, the Merrimack group, auriferous clay, slate, and other rocks. This could only have been accomplished by the subsidence of what had been previously above the waters.

The Rockingham schist covered mostly Rockingham, Strafford, and Belknap counties, and portions of adjoining counties. West of the Merrimack river there are some limited areas that are supposed to belong to the same group. A narrow range occupying the western limit of the porphyritic gneiss of the Laurentian period is covered with this schist. It extends from Lake Sunapee down through Newbury, Washington, Marlow, Gilsum, and Sullivan. Between Landaff and Keene is an extensive deposit of andalusite mica schist, which includes Moosilauke and Mount Carr. Monadnock and the Kearsarge ragged area are isolated masses of the same rock.

The deposit during the Connecticut-Coos period lies north of Dummer and Cambridge, and embraces the width of the state, which is narrow at that latitude. The era may be divided into three sections: the first, when the mountain masses of silica were deposited; the second, when the materials essential to hornblende and mica schist settled to their permanent position; third, when the limestone rock in its primary elements took form and place. About the same epoch, the clay slate formations along almost the entire length of the Connecticut valley were deposited. There are other small areas scattered in the state, especially in the White Mountains, that seem to

belong to the Coos group. The period was terminated by eruptions of syenitic granite.

There do not appear to have been any geological changes for a long cycle of time after the close of the Coos and schist periods. There are no signs of a continued submergence of the Connecticut valley after the deposition of the Coos rocks. The next deposit was at the close of the Silurian period.

This is called the Helderberg period, from the resemblance of the fossils found in its strata to those of the Helderberg Mountains in New York. The Helderberg Ocean covered the same territory, with that just described, west of the Montalban ridge. The rocks of the period are found in Hanover, Lyman, Lisbon, Littleton, and other towns. Most of them include crinoid and coralline limestones.

The Connecticut valley was apparently covered deeply by this ocean. The land of the state was probably covered with vegetation in rich variety. There were deposited in this period sandstone, coralline limestone, together with slate schist, and conglomerate, each of great thickness, the latter being made up of pebbles from the Huronian and Atlantic rocks, and some of the Coos limestones.

During several succeeding geological periods, New Hampshire appeared above the bosom of the ocean and, perhaps, extended to the east of the Isles of Shoals. Nothing belonging to these periods is visible in the state. They left no deposit and exerted no influence upon the area of the state, as far as can be seen now.

Vegetable and animal life, without doubt, flourished within its limits, and a warm, temperate climate prevailed. At the close of the Tertiary period, a much lower temperature began to exert an influence; the snow and ice formed failed to melt, and glaciers of vast extent and great depth were everywhere to be found. For a period of immense length the state was covered with these glaciers, and the climate corresponded in general with that which prevails now in Greenland.

Numerous scorings on the rocks in every locality show that there was a movement of the ice in a southerly direction. In the whole of Coos county, in the White Mountains, and among the higher peaks along the watershed between the Connecticut and

Merrimack rivers, the course taken by these mountains of ice was southeasterly. The highest marks of their course that can be discovered are 5,200 feet above the level of the sea ; but pebbles transported by them have been discovered 600 feet higher, on the north slope of Mount Washington. The summit of this mountain seems to be the only part of the state that has not been subjected to glacial action. Grooves, running from the base to the top of the mountains on the northerly side, show the course taken by the ice ; but the southeasterly slopes present only slight indications of its passage. The ice south of the White Mountains and east of the Connecticut river valley, for the most part, pursued a southerly course.

The highest mountains of this region must have appeared as islands in this sea of ice. In the Connecticut valley, south of Columbia, the ice moved south, a few degrees to the west, according to the course of the river. A set of striæ shows that glaciers moved down the valley of Baker's river to Plymouth, and thence easterly and southeasterly across the state, into Maine. There are similar indications along the line of the Northern Railroad, from Grafton to Andover, and down the valley of the Blackwater.

The effect of local glaciers has been observed in different parts of the state. The terraces along the Connecticut and Merrimack rivers demonstrate the height of the water in these streams, showing the gradual slope of the higher banks from the sources of the rivers to their mouths, corresponding to their fall as they approach nearer to the ocean, and thus furnish proof of the gradual melting and withdrawal of the ice from New Hampshire.

During the glacial period, the land was submerged to the depth of two hundred feet, as we learn from the presence of maritime plants. Since that period, the remains of a few southern plants indicate a long era when the climate was milder than it is now. The discovery of colonies of marine animals belonging to a more southern latitude is a proof of the same thing, and there is evidence that this warm period extended down to the time when the aborigines inhabited the region. This evidence is found in piles of shells of oysters, natives of a warmer clime, that are found on the northerly New England coast, these shell-fish having un-

doubtedly served as food for the human inhabitants of the neighborhood where they have been found.

Such is the outline, brief and imperfect as it is, of the geology of our state, and how much abounding in interest scarcely needs to be asserted. It is perfectly clear that it has exerted and still exerts a marked influence upon the people of the present geological era as to their character and as to their pursuits, and upon the physical geography of the state, determining the altitude of its various localities, the shape of its mountains, the course of its rivers, the nature of soil that prevails along their valleys, the basins that hold its lakes and ponds of unsurpassed beauty, and even to a large extent the course of its railroads that are its thoroughfares for travel and for the transportation of goods.

The altitude of the state, taken in the average, is 1,400 feet. Of course this must affect materially the climate and the character of the atmosphere. The altitude is a direct result of the geological development. This gave us mountains and valleys and level plains. Altitude determines what breezes shall blow, what air we shall breathe, whether that which is laden with deadly miasma, springing from the corruption of vegetable and other matter and bearing to us destructive malarial disease, or whether we shall breathe that which has been made pure by the commingling of various currents from higher and more salubrious regions, and improved by the effect of condensation and rain-fall, so that the noxious elements have been scattered and rendered harmless by contact with what has in effect neutralized them or diffused them. The atmosphere we inhale must be uniformly at a temperature not very high, or it debilitates and corrupts the blood. The state of New Hampshire is almost absolutely free from a malarial atmosphere and that class of diseases which are nourished by it. The period of excessive heat is so short that our air is nearly free from any danger from that source. The lowest altitude of the state is cooled by the action of the sea breezes that come from the ocean lying along our southeastern border and furnishing a succession of beaches that are most agreeable places of summer resort. The area of low land is so small that its conditions are modified by contiguous regions that are more elevated. The degree of cold is not excessive, except in certain regions of not

extensive area, which for that very reason are largely frequented during the hot months.

The highest of our mountains are pleasure resorts in the heat of the summer and have a sanitary value that is not fully appreciated. We are able to furnish more places of summer resort than any other state of equal extent of territory. From the White Mountains to the seashore, we have every gradation of altitude, and furnish everywhere a variety of retreats for those who seek for the recovery of health, as well as relaxation from the burdensome cares of business. Nature, to an unusual degree, has thus favored us through our geological development.

The somewhat cold breezes of winter are not without their favorable tonic effect upon the human constitution, if proper care is taken against too great exposure in the open air, and too high a temperature in close rooms which vitiate and render unfit for breathing the atmosphere inclosed within their narrow limits. By neglecting these two precautions we sometimes lose nearly all the benefits which might be derived from our fine winter climate.

The effect of the geology of New Hampshire upon the cultivation of the taste is of no small value. The scenery which it gives us is beautiful and frequently sublime. There is no deadly, depressing monotony about it. It varies while it instructs and elevates. While our highest peaks exalt and purify the imagination, invigorate and ennoble its conceptions, giving ideas that struggle towards the infinite, lower altitudes abound in views of surpassing beauty that also develop and cultivate, and render subtile and discriminating the æsthetic faculty.

The presence of beautiful and sublime objects in nature allures those who possess any gifts in that direction to copy in art that which has captivated their sensibilities. Hence, the sublime scenery of the region of lofty mountains and softer landscape appears upon the canvas of the painter, and his reproduction of what nature has done stimulates and inspires the genius of those who have not studied the great original. Nature, within the bounds of our own state, is ever instructing by lessons of more power than any master spirit in the realm of painting or statuary can give.

Though there is not a distinct moral or spiritual power to

nature, in her most exalted manifestations there is something that is allied to it, and by an indefinite attraction would bring into harmony with that which is higher and nobler and better. The influences of climate and scenery in some parts of the world are depressing to every higher aspiration, and seem hardly to possess any agreement with an elevated, moral purpose. Happily, there are few such influences in the state where we dwell. The geology that determined the scenery that surrounds us forbade their existence, and commanded us to seek that which was lofty and noble and generous.

The geology of the state has, to a great extent, determined the manufactures that are a chief source of wealth to those who carry them on. The mountains furnish the source of the rivers; the height of the mountains determines the descent of the rivers towards the ocean level. The water power depends upon this descent of the streams to their great receiver. Manufactures, though the etymology of the word signifies that which is done by the power of the hand, are very extensively and more profitably carried on by the power of the water that is ever gravitating with a rush towards the point it can reach nearest the center of the earth.

The Connecticut that rises far to the north, and almost within the province of Quebec, winding its way with short curves south-erly, to the sea, furnishes more power for useful manufactures than has been yet used. An undeveloped capacity remains stored up in its waters, but the time will come when all its energy will be put to some valuable use. The hum of machinery and the tread of a busy population will be heard more than now upon its pleasant banks, and wealth and culture will spring out of this application of its waters.

The Ammonoosuc, one of its tributaries, supplies the power of various enterprises at Littleton, Lisbon, and Bath.

The Ashuelot is the creator of many industries that flourish along its banks.

The Androscoggin, rising in Lake Umbagog, and gliding along the eastern portion of Coos county till it passes into the state of Maine, supports an active business of much value at Berlin and Shelburne and other points.

Salmon Falls river runs its brief course, emptying into Piscataqua river and bay, but is by no means a useless adjunct to Rollinsford and Great Falls.

But the Merrimack is in the highest degree the parent of manufacturing industry and wealth. Its descent has given facility to the growth of large cities upon its banks. Manchester sprang into being because of falls in this river, and because enterprising, far-seeing men could form a conception of what was possible, and what being possible, they determined should be real. Therefore, a city combining wealth and a population of enterprise and refinement adorns the sandy banks of the Merrimack river, in the neighborhood of Amoskeag Falls.

And below, on the same river, though deriving its power from the Nashua, a tributary of the former, rises the goodly city of Nashua, older than Manchester, and yet beginning its prosperous career within the memory of many persons now living. Such tributaries as the Pemigewasset, the Winnepesaukee, flowing from the north, the Contoocook, flowing from the south, almost at the Massachusetts line, support on their banks busy hives of industry.

There are many smaller streams that cannot be mentioned here, which, in their sum, contribute a large amount to the wealth of the state, and furnish a field for the industry and enterprise of the people which cannot be estimated with exactness. Exeter river also furnishes facilities for extensive manufactures.

The last census of the state returns the number of separate establishments as 3,181; the capital invested as \$51,112,263; average number of males employed above 16 years of age, 29,356; average number of females employed above 15 years of age, 16,184; average number of children and youth, 3,291; total number, 48,331; total amount paid in wages during the year, \$14,814,793; value of materials used, \$43,552,462; value of products, \$73,978,028. Some of the statistics of specific cotton manufactures are as follows: Capital invested, \$19,877,084; number of spindles, 944,053; number of looms, 24,299; operatives employed, 16,529; cotton consumed, bales, 157,673; cotton consumed, pounds, 76,386,499; value of cotton consumed, \$8,629,063; wages of operatives, \$4,290,960; total value of materials used, \$10,146,904; value of products, \$17,953,403.

The importance of this branch of industry is manifest at once, and the relation of the geology of the state to its existence and prosperity is also manifest. The rivers of the state are, for the most part, the operating power in these enterprises. The geological development of the long ages not only furnished the channels wherein flow the streams of water, but put into action the influences that supply the water running along the courses created by the geological deposition of the rocks. The prime sources of the Merrimack are in the White Mountains and the lake region.

The mountains draw from the clouds their moisture as they pass over their elevated summits, and hold it by their forests and by the mossy covering of their sides, their glens and deep ravines, so that it does not speedily flow away in useless and damaging freshets, but gradually runs towards the region of its profitable employment. Lake Winnepesaukee is a great reservoir of water, where is stored the power to be used when most needed for the propelling of machinery to the great advantage of capitalists, who have their money invested, and of labor that must needs have a field of operation, or fail of profit and lose its unused capacity. Geology has also formed many other basins of smaller extent for saving the water for the exigencies when it will be most needed. The ponds that supply the tributaries of the larger Merrimack and other streams are many of them most useful as places for the accumulation of surplus water, which is sure to be needed after the heat and drouth of summer have cut off the other supplies of moisture. The capacity of these natural reservoirs is commonly largely increased by means of dams constructed at their outlets, and opportunities are abundant for the construction of artificial reservoirs.

The forests of our mountain regions check the action of the sun's rays upon the accumulated snows, so as to prevent their rapid melting and flow to the ocean bed, carrying, as sometimes happens, ruin in their course. In these many ways, geology becomes the servant of the people, aiding them in what is greatly essential to their prosperity and happiness.

Notwithstanding all that has been done in applying the power of the water system of the state to the uses of industry, much of this power is still latent, that is, it is unused. It is said that there

is more water power in the Merrimack than in all the rivers of France, a level country whose streams are relatively sluggish and to that extent without the power of driving machinery. At Sewall's Falls, on the Merrimack, in the city of Concord, within three miles of the state house, is a descent in the bed of the river which creates a power sufficient to keep in operation the manufacturing enterprises of a city of moderate size. Capital will doubtless find, before long, a permanent and safe investment here.

Allusion has already been made to New Hampshire as a general summer resort and sanitarium, containing more pleasant retreats than any other state of its size. Without any great degree of investigation, it becomes manifest that this is the fruit of its geological development. It is also obvious as a source of much pecuniary profit to those who possess the real estate including the temporary homes of those who come from abroad.

The relation of geology to agriculture is direct and important. All soil must spring from the rocks. The field of this department of industry was originally a barren area of rock that rose out of the waters through the effect of an internal force, or from a subsidence of the surrounding ocean. In process of time, the action of the atmosphere and the rain, aided by the frost, broke up and pulverized the masses which seemed at first so unyielding. Reduced to this condition, the rocks form the greater part of the soil which we denominate earth, though a part arises from the decay of vegetable matter, which goes into the soil to return again and form new vegetable products.

The nature and value of the soil for agricultural purposes must be largely determined by the geological formation from which it springs. All the inorganic elements, which are the food of plants, are the result of the dissolution of the material that geological forces have brought to a state which is solid and permanent to most influences, except those of the atmosphere, rain, and frost. These operate slowly and surely to work out their appropriate results, and give us a soil containing the original elements of the rock.

Calcareous soils, gneissic, including granitic, and slaty soils comprise the great divisions which are a direct consequence of

the geological influences of former eras. The calcareous rock of the Connecticut valley at Colebrook and Claremont has impressed upon it those qualities of fertility that are not everywhere manifest within the narrow limits of the state.

Slaty soils have a good degree of fertility, and are exhibited on the Connecticut river and in Rockingham county. There are the schistose rocks, that are allied to the slaty formations, and frequently border on them, and on their decomposition form a warm and somewhat rich soil. Mica schists, when exposed to the atmosphere, often exhibit a very rapid decomposition, the pulverized matter assuming a yellow color.

A large portion of the state is underlaid by gneiss. This, in the material of its composition, resembles granite. It contains feldspar, mica, and quartz. The soil produced from it is usually better than that coming from granite. Potash, the soluble element of gneiss, is found in large quantity in feldspar. The carbonic acid of the atmosphere combines with rain-water and, acting on granitic and gneissic rocks, has a tendency to decompose them, and thus a large per cent of potash is set free to enter into the composition of soils, furnishing a needed element for the growth of vegetation. Alumina, also a valuable element of the soil, constitutes about twelve per cent of the weight of feldspar. Four equivalents of silica and three of oxygen are the other elements that enter into the composition of this mineral. The other materials that unite with these varieties of rock are mainly silicon. The decomposition of them would result in large quantities of sand, as well as of those substances mentioned. The feldspar of granite is in less proportion than that of the different kinds of gneiss.

Calcareous soils are generally very productive of wheat, the prince among the cereals. By the decomposition of these rocks, many small moluscosous animals obtain the materials for their shells. The beds of marl at the bottom of ponds, in deposits several feet thick, from which nearly pure lime can be obtained, as well as a fertilizer all ready for application to the land, arise from this source. These beds add new value to the calcareous regions. The disintegration, which has made the surface of the state what it is, was, in its effect, much more intense in the by-gone ages of

geological time than now. Before the Carboniferous period, there was more carbonic acid in the atmosphere than at present. This would be introduced through the crevices by means of rain-water, and would also act upon the external surfaces by enveloping them.

One result was the decomposition of the rocks containing feldspar. From this decomposition came beds of kaolin clays, and gravelly heaps of the residua, while the potash sometimes flowed off in the streams. Rain, rivers, glaciers, icebergs, ocean, landslides, and the great northern drift, accomplished a mighty work in removing rocks and soils, and in mingling them together. The transportation of calcareous rock has, in some instances, improved the character of the soil.

It is believed that erosions anterior to the glacial period removed as much as fourteen hundred feet in depth from the entire surface of the state. It can be seen what little value the land would have for agricultural purposes, were its average level at the height of 2,800 feet. Thus have geological forces wrought for man in giving him a habitable abode and appropriate surroundings. Geological development has, from the dawn of its action, exerted its influence upon the agricultural interests of the state, or, more truly, upon the foundation on which it rests. The different varieties of soil within our bounds depend for their differences mainly on the cycles of geological time that defy our calculation.

The knowledge of geology is the knowledge of soils. The knowledge of soils is necessary to, and will extensively determine, our knowledge of fertilizers, as the fertilizer furnishes what the soil wants for the growth of the crop.

The inorganic chemical elements that enter into the formation of vegetable organizations are derived from the rocks, and are these: Oxygen, sulphur, phosphorus, carbon, silicon, potassium, sodium, calcium, aluminum, magnesium, iron, and manganese. The decomposition of rocks containing a large amount of silicon produces a porous, sandy soil. Where alumina is predominant, the result is a thick, clayey soil that hardens in the sun, and fails to properly nourish the plant. In like manner fail the excessively sandy localities. In them, the earth does not retain the moisture

that reaches it from its various sources, and the want of water leaves vegetation to suffer.

It is when the two are properly joined together that a favorable condition is presented for the development of vegetable growth. Everything that enters the plant must enter it in a state of solution. The pores of every living thing that grows out of the earth are the avenues by which its supporting sap carries nutrition to its various parts. Everything must enter and pass along these in a fluid state and become incorporated, by the action of the vital forces, with the living fibre of the plant. All substances, organic and inorganic, must follow the conditions of this law.

Water is the medium of communication between the mineral and the vegetable kingdoms. This element itself forms a large part of the substance of all plants, but performs a service as important in carrying to its destination all other kinds of nourishment. The magnesia, the iron, the alumina, the silicon, the potassium, the phosphoric acid, the carbonic acid, must all make use of water as a servant and must enter into a combination with it. When a tree loses its moisture, it is deprived of its sap and of its fibre at the same time. Its death is made certain.

The most important service of silicates and of alumina is to furnish a soil that shall be sufficiently porous to enable the air to reach the roots of all growing crops, and to hold in solution the water that is needed for all purposes of securing their development.

In addition to determining the character of the soil and making known the requisites for its improvement, geology is the science that often reveals the fertilizers that are needed to invigorate the exhausted fields and supply what the geological development has not afforded. The geologist is sometimes able to point out deposits of phosphates, and show what rocks contain carbonate of lime, or discover sulphate of lime, marl beds, or decomposed fossil shells. Geology is a science that stands in close local relation with agriculture, and, in conjunction with chemistry, may do much to assist it in accomplishing its purpose. Agriculture, though a practical art, involves many scientific principles, and must not disdain assistance from any source, whether within or without its own specific field. Scarcely anything is ab-

solutely independent and entirely by itself. All science joins hands, and every section helps the rest. There is no exception in respect to agriculture.

New Hampshire, though only of a very small area, has an industry in the line of cultivating the earth that is honorable to the capacity and probity of its inhabitants, and productive of comfort and a fair degree of wealth. The statistics, as given by the last census report, show the annual production of useful crops to be as follows: Hay, 583,069 tons; hops, 23,955 pounds; orchard products, in value, \$972,291; potatoes, 3,358,828 bushels; wool, 1,060,589 pounds; milk, 5,739,128 gallons; butter, 7,247,272 pounds; cheese, 807,076. The following are the cereal products of the 3,460 acres devoted to their culture: Barley, 77,877 bushels; buckwheat, 94,090 bushels; Indian corn, 1,350,248 bushels; rye, 34,638 bushels; wheat, 169,316 bushels. The whole number of farms is 32,181; improved land, 2,308,112 acres; value of land, fences, and buildings, \$75,834,389; value of farming implements, \$3,069,244; value of live stock, \$9,812,064; cost of building and repairing fences, \$334,410; cost of fertilizers purchased in 1879, \$165,393; estimated value of all farm products, \$13,474,330. The increase in the number of farms from 1870 to 1880 was 9 per cent. The total area of settlement was 8,705 square miles. The total population of the state in 1880 was 346,991.

The people, with a good degree of contentment, cultivate the fertile valley and the less productive plain, while the hills give pasturage to a multitude of flocks and herds.

The relation of geology to all mining enterprise is direct and manifest. Mining is obtaining treasures from the bowels of the earth. All precious metals and all others are the deposit of geological agency. They came from the waters that reigned at first, and contained, through the wisdom and skill of the Creator, all the elements of things useful and precious, though they may have obtained these elements from some other source. In our own state, though less abounding in mineral wealth than some others, we are able to survey certain not extensive areas that contain beneath their surfaces more than simply the elements of vegetable growth, and are of more value as productive of mineral than

agricultural riches. Iron of the best quality has been found in Franconia, and mining there has been in operation.

In the Ammonoosuc gold field, gold has been discovered in sufficient quantities to justify mining operations. All our industries are the direct result of the working of that geology which has distinguished our state as an area of much interest and which carries us back, in time, untold centuries, and bids us await the coming era, which we suppose will be only the continuation of the present, with confidence in the all-ruling Power to whom a thousand years are as one day, and one day as a thousand years.

HOMES AND FOODS.

BY PROF. VICTOR C. VAUGHAN, M. D., OF THE UNIVERSITY OF
MICHIGAN.*

BUILDING A HOME.

LOCATION.

THE location of the home of the workingman is often determined by considerations over which he has no control. Cost of land and distance from place of labor must influence the selection. If possible, however, the house should not be located in a low, damp place, or on made earth. In cities, many low tracts, and even the beds of small streams, marshes, and lakes are filled in with general refuse, such as street sweepings, back-yard rubbish, ashes, and garbage. Such soil, unless thoroughly underdrained, must be unfit for the location of habitations. It is damp, and will for years be filled with the products of decomposition, arising from the putrefaction of the garbage deposited there. Houses built in such locations must be damp, musty, and unhealthful. The inmates of a house built in such a place are likely to suffer from malaria, bilious fever, and rheumatism, even if they do not fall victims to the more dreaded diseases, typhoid fever and consumption. The house should also be far from

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marshes and other low lands whose surface is covered with water in the spring and early summer, and then exposed later. Such situations are likely to be malarious. Neither should the home be located near manufacturing establishments which usually have garbage about them, such as breweries, tanneries, glucose factories, rendering houses, and oil refineries.

The site should be one which is naturally well drained. The slope of the land should be from the house. Extra precaution must be taken when it becomes necessary to build at the foot of a hill which is covered with houses from which the surface water and underground drainage flows toward the home. The location of neighbors' outhouses, with reference to the proposed home, should also be taken into consideration. While an intelligent man will not neglect the sanitary condition of his own premises, his neighbor's cesspool or privy vault may drain into his well and poison his drinking-water. Have the house upon a place high enough, and as dry as possible. Avoid, whenever practicable, narrow streets, which are devoid of sufficient sunlight and pure air.

The best soils upon which to build are gravel, marl, and limestone, for in these the drainage is likely to be better than in others.

A due amount of shade around the home renders it more healthy, but the shade should not be dense enough, or close enough to the house, to obstruct the air and light.

THE CELLAR.

Every dwelling-house, even that which has but one room in it, should either have a cellar, or should be raised sufficiently high from the ground to allow a free supply of air under it. The walls of the cellar should be perfectly water and air tight. It is better, in making the excavation, to remove the earth a foot, on all sides, farther than the line on which the outside of the wall will stand ; then, after the walls have been built, pack the space with clay or gravel. In this way, the walls of the cellar are more likely to be kept dry. If built of brick, the walls should be hollow, consisting of a thin outer wall, two or three inches from the main wall. The two are firmly held together by occasionally

placing a brick across from one to the other as the walls are being built. Unless this is done, moisture will pass through a brick wall, it matters not how thick it may be.

The cellar floor should be of concrete, about six inches thick, and covered with Portland cement or asphalt. If the soil be very damp, tiling should be placed under the cellar floor, and carried out beneath the wall to a larger tile, which passes around the house and leads off into some suitable receptacle.

It is absolutely essential to a healthy house that its cellar should be free from dampness and ground air. In order to secure these requisites, the walls and floor of the cellar must be well built.

The cellar should be well supplied with light by having windows above ground, or by sunken areas in front of the windows. The window-sashes should be hung on hinges, so that they may be easily opened when the cellar needs an airing.

If the cellar is to be used for several purposes, as the location of the heating apparatus and the storage of fuel and vegetables, it should be divided into compartments, the temperature of which may be kept at different degrees.

Basement bedrooms are almost universally unhealthy, and should be used only in cases of absolute necessity. It is also best not to have the kitchen in the basement, especially if the room directly above be occupied. If stationary wash-tubs be placed in the basement, they should have metallic or porcelain lining, and the pipes which conduct the refuse water from them should be thoroughly trapped.

THE WALLS.

If built of brick, the walls of the house should be hollow, as described in referring to the walls of the cellar. Furthermore, the plastering should never be placed directly on the brick. The inside of the wall should be "furred," scantling nailed to the furring, and the lathing done as in a frame house. It has been found that a single brick will absorb as much as one pound of water; and if a brick wall be built solid, and the plastering placed directly on the brick, the house will be constantly damp. Many of the older brick houses are constructed in this manner,

and consequently their interiors always have a damp, musty odor, it matters not how untiring the housekeeper may be in her efforts to have everything sweet and clean.

Even in case of a stone wall, the plastering should not be placed directly on the wall, though stone does not absorb water to any such extent as brick does.

New brick and stone walls are necessarily damp, and for this reason houses built of either should not be occupied until some weeks after the building of the walls. In order for them to dry thoroughly they must be pervious to air, and walls built as recommended above will allow the air to pass through them freely. Plastering does not prevent the air from passing through the walls, but papering does. However, as papering is the most economical way in which walls can be decorated, it will long continue in use. Wall papers containing arsenical colors have been and are still, to some extent, used. Rooms decorated with such papers are not suitable for living-apartments. It is generally supposed that only the green colors contain arsenic, but, in truth, it may be present in paper of any color. The only way, then, by which they may be avoided is by having the selected samples tested. Any intelligent druggist or chemist will make the analysis for a small fee, which should be at the expense of the paper-dealer.

A nice way of finishing inside walls is to paint and then varnish them. The varnish prevents the rubbing off of the paint, and places the walls in such a condition that they may be washed whenever desirable.

THE FLOORS.

Floors should be made tight, so that they may be thoroughly scrubbed with soap and water occasionally. The best floor, from a sanitary view, is one of hard wood, planed smooth, and oiled. It is far better to have a clean, bare floor, than one covered with a filthy carpet. However, where carpets are kept clean, and are occasionally taken up, and the floor scrubbed, there is no objection to their use, and it must be admitted that a clean carpet adds much to the comfort of a room. A cheap straw matting is now made, which can be washed when necessary, and it will not

retain dust and filth to the extent that woolen carpets do. Such a covering is especially suitable for dining-rooms.

ARRANGEMENT OF ROOMS.

The living-rooms should be on the sunny, airy side of the house. Human beings as well as plants demand sunlight. Too frequently the good housewife shuts out the sunlight for fear it will fade the carpet. As some one has said, "It is far better to have faded carpets than to have faded cheeks." A little saving in the color of the carpet is poor economy when it is secured at the cost of health. Especially should the room occupied by the women and children, who are indoors much of the time, be well supplied with light. If there is to be a long, dark hall or passageway in the house, let it be on the side upon which the least sunlight falls, and place the living-rooms on the other side.

It is, unfortunately, the fashion to make bedrooms small, in order to have a large sitting-room. Too often the bedroom is a mere recess, scantily supplied with fresh air. It is better to have a smaller sitting-room and a larger bedroom. Even farmers often suffer from diseases which are due to an insufficient supply of pure air. This arises from the fact that for six or seven hours out of every twenty-four they are shut up in small, tight, musty bedrooms, and are compelled to rebreathe the air which they have already once breathed.

If the owner of the house can afford it, at least one bedroom should contain a grate or fireplace, for, with every attention to the laws of health, there will come times when some member of the family will be sick, and the sick-room should be full of cheer. The open fire is cheerful and serves as an excellent ventilator. Pleasant surroundings often aid the doctor's pills and potions in restoring the patient to health.

Of course the number and exact arrangement of the rooms will depend upon the purse of the owner ; but a cottage may be built so as to be as healthy as a palace, and, indeed, the advantage is often in favor of the former, as the more complicated finishings and elaborate furnishings of the latter may serve as harbors for dust and filth.

Space may often be saved by doing away with the conven-

tional long, dark hall, and by having the stairs go up from a sitting-room, or from a smaller vestibule. The long halls are often cold, dark, and dreary. In winter, they are filled with cold draughts, and in summer, they are receptacles of refuse of various kinds, and at all times they are cheerless. They may be necessary in certain houses, but in small homes they are neither ornamental nor pleasant.

It is the ambition of most American housewives to have a parlor, in which the most valuable household ornaments are placed, and which opens only when some honored guest comes. The small boys of the family look upon it as a forbidden territory, and too frequently both fresh air and sunlight are regarded as intruders, and are shut out. The exclusion of the small boy may be all right, but the air and sunlight should not be treated with so much discourtesy. Indeed, they should be considered the most honored guests, and should be welcomed even to a place in the parlor.

Probably the most important room in the house is the kitchen. Before you praise the housekeeping of any woman, visit her kitchen. The parlor may be a beauty, the bed linen may be spotless, the table may be covered with decorated china, but if the kitchen be filthy, all is in vain. But in order that the kitchen may be kept in good condition, its construction must be proper. The floor is best of hard wood or yellow pine; or, if these are too expensive, of selected white pine. They should be kept bare.

At least two windows, one on each side, are desirable. A pantry or shelves for setting aside clean cooking utensils and dishes should be at hand. If the cellar be used for the storage of vegetables, an inside stairway from the kitchen or pantry should lead down into it. The flour-box in the pantry should be so hung that it will close itself. It adds much to the comfort of the cook, and to the cleanliness of the walls and ceiling of the room, if the stove or range be covered by a hood which conducts the vapors arising from the cooking food into a flue in the chimney.

The house should contain a bathroom. In the absence of public water-supply, a force-pump below, a cold-water tank in the attic, and a hot-water tank attached to the kitchen range will furnish the bath-tub. The room should be heated either directly

or from another room, otherwise it would not be used much in cold weather. The cost of the bathroom and its supply need not be great, while the pleasure and benefit derived from its use will be appreciated.

THE WINDOWS.

If possible, every room should have direct light, and not be dependent on that which is diffused through an adjoining room. The location of the windows should be such as to give the greatest amount of direct sunlight. The windows should extend well towards the ceiling, and should be hung so as to lower from the top, as well as raise from the bottom.

The window shutters or blinds must be hung in such a manner that they are easily opened. In no part of the house should they be kept closed during the day.

HEATING AND VENTILATION.

It would be wholly out of place to attempt here any elaborate discussion of the many methods of heating and ventilating buildings now in use. Only a few practical statements will be made with reference to securing adequate warmth and sufficient fresh air in dwellings.

The most common methods of heating small residences are by the stove, open fire, and hot-air furnaces. The stove is the most economical. The open fire is the most enjoyable and, where it is sufficient, the most healthy, but in the northern states the open fire alone seldom furnishes enough heat during the coldest months. The hot-air furnace may be so constructed as to be a good method, but care must be used in selecting the furnace and arranging for ventilation.

In small houses the heat is generally supplied by stoves. In rooms which are occupied only during a few hours of the day, the wood stove is sufficient, and, indeed, has certain advantages. The room can be quickly heated, and when left, the fire soon dies out, thus saving fuel. But where the room is constantly occupied, coal is a more suitable fuel than wood. The temperature is more even, and the fire burns more slowly. The relative cost of these fuels varies in different sections.

The coal stove should have no loose joints through which gases can escape. The mica doors should be kept in repair, and the flue must not be allowed to clog. The principal gases given off from burning coal are carbonic acid gas, carbonic oxide, and sulphurous oxides. The carbonic oxide is poisonous when inhaled in any quantity. It produces a sensation in the head similar to that which would be caused by a tight band, and in larger amounts it renders a person insensible, and may produce death. It should be remembered that the carbonic oxide is without odor. Whole families have been fatally poisoned with it. Especial care must be taken with coal stoves which are used in bedrooms, or in rooms which communicate with bedrooms, as the carbonic oxide may prove fatal to persons while sleeping, without waking them; but there is no danger if the stove and flue be in proper condition. Makers of wrought-iron stoves and furnaces will insist that these gases pass readily through cast-iron, and for this reason their stoves are superior, and free from danger; but a properly constructed and properly managed cast-iron stove or furnace is free from danger, and in many respects is superior to those made of wrought-iron. Especial attention should be paid to the position of dampers in coal stoves at night.

One of the greatest objections to the use of stoves is, that in houses in which they are used, there is generally no attempt at ventilation. However, a house heated with stoves may be as well ventilated as any other. In houses as ordinarily built, much fresh air will come in through the crevices around the doors, windows, and baseboards. But if many occupy the room, the amount of fresh air which finds admittance through these channels may be insufficient. Especially is this likely to be the case if the room is partly surrounded by other parts of the building, and consequently has but a small surface directly exposed to the outdoor air. Besides, the direct draughts from doors and windows may be so great as seriously to affect the health of the inmates, giving them colds. When any of these troubles exist, one of several simple devices may be resorted to in order to secure the admission of plenty of fresh air without dangerous draughts. The most common of these devices consists in fitting a piece of board from four to eight inches wide in the window frame, under the

lower sash. By this means, a space is left between the bottom of the upper and the top of the lower sash, through which the air enters, and the current is thrown upward, striking the ceiling, from which it is diffused all over the room. Dr. Keen recommends tacking a piece of cloth across the lower eight or ten inches of the window frame, then raising the lower sash to a greater or less extent, according to the weather. In this way two air-vents in the window are established, one under the lower sash, the current of which is turned upward by the cloth, and the other between the upper and lower sash, as when the board is used. Through the upper vent it is supposed that some of the foul air will escape, though the current through this opening is not invariably outward.

What is known as Maine's elbow-tube ventilator consists of a board placed under a raised sash, as already described. This board carries two tubes, about six inches in diameter, which turn upward, and the ends of which are supplied with valves, by which the amount of inflowing air can be regulated.

Another method provides for smaller tubes brought through the wall and turned upwards into the room. Some favor still another plan, which consists in bringing a tube about six inches in diameter through the wall, and, possibly, under the floor to the stove, where the tube terminates in a sheet-iron jacket placed around the stove, leaving a space of one or two inches, and having escapes only at the top of the jacket. The heat of the stove will produce a strong current through the pipe, and the incoming air will be warmed in passing through the jacket.

By any of the above-mentioned devices, abundant facility may be furnished for the admission of fresh air; but as two bodies cannot occupy the same space at the same time, there must be provided some escape for the foul air. This should always be attended to in the construction of the house. For every room which is to be heated by a stove, there should be two flues, one for the smoke and other gaseous productions of combustion, the other for the removal of foul air from the room. The ventilating flue must come to the floor, just above which should be a register. When there is a fire in the stove, the upper part of the ventilating flue will be warmed by the smoke flue, and consequently there

will be an upward current in it. In this way the withdrawal of the foul air is rendered certain. It should also be seen, in the construction of the chimney, that the inside of this ventilating flue is not left so rough as to impede the flow of air through it, and that it is not clogged with mortar or pieces of brick. A good draught through the ventilating flue is almost of as much importance as the draught of the smoke flue.

The partition between the smoke and ventilating flues should be of brick placed on edge, thus making it as thin as possible, so that the upper part of the ventilating flue will be thoroughly heated from the smoke flue. By another method the smoke flue may be made of iron pipe placed in a large flue, and the space all around the pipe will serve as the ventilating flue. I have stated that the register in the ventilating flue should be near the floor. If near the ceiling, as some would have it, there would be too great a loss of heat, as the fresh air, as soon as heated, would find its exit. For summer ventilation, the foul air outlet may be at or near the ceiling, but such ventilation in winter costs too much, and, besides, when it is used, great difficulty will often be experienced in heating the room.

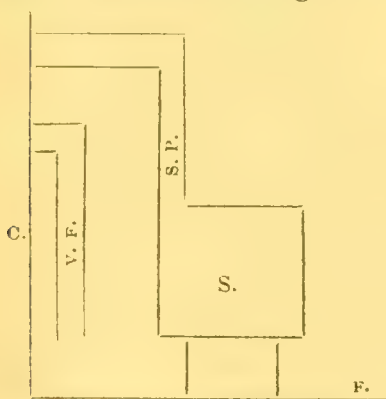


Fig. 1. — F., floor; S., stove; S. P., stove pipe; V. F., ventilating flue; C., chimney.

With the plan recommended above, there is no reason why any room heated with a stove may not be so well ventilated that no disagreeable odor will be perceptible to the most sensitive person upon coming in from the outdoor air; provided, always, that the room is clean. Unfortunately, however, the great majority of houses which are heated by stoves, are built without the slightest provision for ventilation. In such houses, fresh air

may be introduced according to the methods already given; but the escape of the foul air is more difficult to be provided for. It may be done, however, as follows: Place a tin or sheet-iron pipe, of from six to ten inches in diameter, according to the size of the room, along the wall behind the stove. The lower end of

this pipe extends to within a few inches of the floor and remains open, while the upper end passes, by means of an elbow, into the smoke flue below the point at which the stove pipe enters, as shown in the accompanying Fig. 1. The upper end of the ventilating flue may, when the chimney begins near the ceiling, terminate in a jacket around the stove pipe, the jacket passing into the chimney, as here shown in Fig. 2. In all cases, the ventilating flue is to have air-tight joints.

With the open fire or grate, the withdrawal of the foul air is all provided for, as it will escape up the chimney. The open fire is not so economical as the stove; but when sufficient to warm the room, the former is, at least, as both are ordinarily arranged, more healthful. With the open fire or grate, much of the heat escapes up the chimney; however, with the grate this loss of heat can be, to a considerable extent, lessened by setting the fire basket well forward.

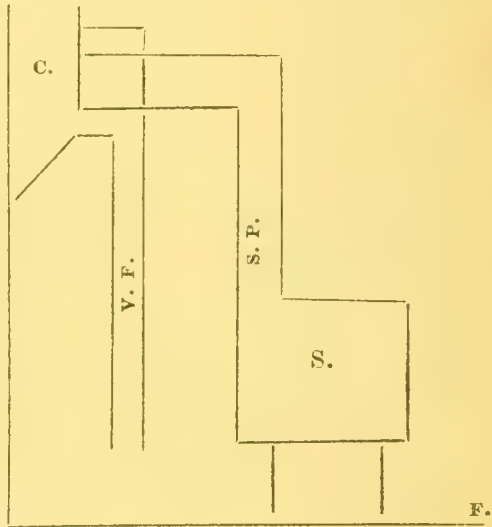


Fig. 2.

When the hot-air furnace is used, certain precautions are desirable, both for economy and health. In the first place, the furnace selected is nearly always too small for the extent of heating required of it. When this is the case, the fire must be pushed as much as possible in order to keep the rooms warm in winter; consequently, the air entering the room is overheated, and produces headache and dullness. At the same time the furnace is soon burnt out, and any money saved in the first place by purchasing the smaller size will have to be expended with an additional amount in securing a new furnace.

The furnace should be thoroughly incased with thick brick walls, to prevent great loss of heat by direct radiation in the cellar. The owner of the house will be rewarded for his time and trouble if he sees to it that this work is well done.

The furnace must receive the air which is to be heated directly from the outdoor air, and not from the cellar. The cold-air duct should be perfectly air-tight, so as wholly to prevent the cellar air from entering the heating chamber. Wooden air-boxes are not to be recommended unless they be carefully lined with some metal. The external opening of the cold-air box should not be near any cesspool, drain, or other possible source of deleterious gases. It should also be protected by a piece of wire net. In the cold-air duct, preferably near its external opening, should be a sliding valve, by which the amount of air passing to the furnace can be regulated; but care must be taken that this valve is never entirely closed. Probably it would be better to have it made so that when pushed in as far as possible it will obstruct only half the area of the duct.

The air-chamber in the furnace should be kept supplied with water. The hot-air flue should be so arranged that the horizontal ones are not more than fourteen or sixteen feet in length, for if the horizontal flues be much longer than this, the draught through them will be so slight that the rooms will not be warmed, while the rooms supplied with vertical pipes will be overheated.

The warm-air register in the room should not be placed directly in the floor, but in the baseboard. If placed in the floor, it soon receives a large amount of dust and other refuse.

With a hot-air furnace properly selected and arranged, the amount of warm, fresh air entering the room is sufficient. But before the fresh, warm air can enter, the air already present must find an exit. The following principles may guide us in economically ventilating a room heated with a hot-air furnace: —

1. Bring the fresh air in near the floor.
2. Take the foul air out near the floor.
3. Create a draught in the foul-air shaft by means of heat.

Unless the air already in the room has some means of exit, it will be found utterly impossible to heat the room with the warm-air furnace. Then it will be seen that both the heating and ventilation depend largely upon the withdrawal of the foul air. If the foul-air register be near the ceiling, much of the warm air from the furnace will escape directly into the foul-air shaft. If there be an open fire in the room, the foul air will find a ready

exit through the chimney. If there be only a ventilating flue, it should be in the same chimney with some other flue which is heated, at least in its upper half. Thus a number of ventilating flues from as many rooms may be placed in the same chimney with, and arranged about, the smoke flue of the furnace. Often we find that one ventilating flue is expected to do service for a room on the first floor, and also for another directly over it on the second. The result frequently is that the foul air of the lower room passes into the room above. There should be a separate ventilating flue for each room.

WATER-SUPPLY.

It is of the greatest importance to the family that its supply of drinking-water be of unquestionable purity. That such dreaded diseases as cholera, typhoid fever, scarlet fever, diphtheria, and dysentery may be spread by impure drinking-water, there can now be no question.

The sources of drinking-water may be divided into the following classes: —

1. Cistern water.
2. Surface water.
3. Subterranean water.

Cistern water is that which is collected upon the roof of a house, and stored in a reservoir known as a cistern, or in a tank, which is usually placed in the attic of the house. Cisterns, or underground reservoirs, are more generally used than tanks.

The condition of this kind of water will be influenced by the air through which it falls, by the nature of the roof, and by the kind of cistern, and the care exercised in keeping the roof and cistern clean.

In large cities, especially where there is much manufacturing done, there is always a considerable amount of dust and other impurities in the air, much of which is brought down with the rains. The conductors leading from the roof to the cistern should be supplied with means for turning off the first part of the rainfall. In this way the impurities taken from the air and those collected on the roof are disposed of. Especially is this desirable if the roof be of wood and old, if there be a collection of leaves

and other *debris* from projecting branches of trees, and if there be any chance of birds depositing their excrement upon the roof. Probably the cleanest roofing material is slate ; but its cost has prevented its general use in the construction of residences.

The cistern should be built of brick, and plastered water-tight upon the *outside* as well as upon the inside. Strict attention should be paid to this, and the walls should be so built as to prevent the possibility of water from the adjacent soil passing into the cistern.

The top of the cistern should be well covered, so as to prevent small animals as well as vegetable refuse from falling in. The best covering would be a box built up several feet above the ground, and covered with fine wire netting. In this way the fresh air will pass down, and the space above the surface of the water will be ventilated. When this cannot be used, a tight covering of stone, or of wood, if all boards are removed and replaced by new ones at the first sign of decay, may be used.

A wooden pump should not be placed in the cistern, as it soon decays, becomes covered with moss, and collects upon it much filth. An iron pipe with the pump in the kitchen is probably the best arrangement. However, the cistern should never be built under the house. When so built the air above the water is invariably bad, and the periodical cleaning out of the cistern, which should be done once a year at least, is not so likely to be attended to.

It is customary in some places to place near the top of the cistern an overflow pipe which leads into a cesspool or privy-vault. This practice has, without doubt, cost many lives. There should not under any circumstances be any connection between the cistern and any receptacle of filth. This overflow pipe is often untrapped, or the trap becomes defective, and the gases arising from the decomposing matter of the cesspool and privy-vault pass into the cistern. Indeed, cases are known where not only the gas, but fluid refuse, has thus been poured into the cistern.

However much care may be taken with the cistern, — and the above suggestions should be deemed of imperative importance, — the cistern water should be filtered before used. Many cheap and effective household filters are made, and it is not necessary

to go into detail concerning their construction ; but a few practical hints may be given as to their care. A filter which is kept constantly under water soon becomes utterly worthless. The charcoal box should be frequently exposed to air, and, if possible, to direct sunlight. A filter removes suspended matter, and, on account of the air condensed in the pores of the charcoal, destroys to a certain extent the organic matter held in solution in the water. If any epidemic disease prevails at the time, it is always safest to boil any and all water used for drinking purposes. Cistern water may be boiled and then filtered. If one has no regular filter, it will be better at all times to boil the water, after which it may be allowed to run through a piece of filter paper, which can be obtained for a trifle at any drug store, placed in a tin or glass funnel. When filter paper is used, a new piece should be placed in the funnel each day.

The purity of surface water will depend on the condition of the soil upon which it falls and over which it flows, as well as upon the air through which it falls. Water which falls upon and flows over a filthy soil should not be used for drinking. Since the amount of refuse on the surface of the earth is usually greater in thickly settled countries, the water collected on such sheds is unfit for use. That there is a certain degree of purification in running streams there can be no doubt ; but, notwithstanding this, specific poisons have been carried long distances in rivers, and have still manifested their poisonous effects.

When any serious epidemic prevails, and surface water constitutes the drinking supply, it should always be boiled. In India, the spread of cholera is often along the water-courses into which excrement from the sick and the bodies of the dead are often cast. Typhoid fever and dysentery are also often spread by the use of surface water.

The water collected in shallow wells is really surface water, and that often of the worst kind. The use of drinking-water from shallow wells is, as a rule, to be condemned. Many people think if water percolates through a few feet of soil, every harmful substance is removed. No greater mistake could possibly be made. Indeed, by percolation through the soil, the impurity of the water is often increased. Various kinds of filth which have accu-

mulated upon and within the soil are dissolved in the water and carried into the well. Often we find in a small back yard a cess-pool, privy-vault, and well, all in close proximity. If the well be a shallow one, such an arrangement is probably the worst, in a sanitary sense, that could possibly be devised.

Subterranean waters used for drinking purposes are those obtained from springs and deep wells. Whether such waters are pure or not depends largely upon the geological formations in which they exist. The source of the water must be below rock or thick clay beds in order for the water to escape surface contaminations. Springs from gravel hills may be as impure as shallow wells. A very small amount of iron in water does not render it unfit for drinking, but water which contains more than one tenth of one per cent of iron is unfit for constant use.

Deep wells should have their walls so protected as not to permit of surface water finding its way through them. If this is not the case, their waters may become quite as foul as those of shallow wells.

Subterranean waters are often hard. By this is meant that they fail to make a lather with soap, or a large amount of soap must be used with them in order to produce a lather. The hardness of water is due to the presence of certain inorganic salts, as those of lime and magnesia, which form insoluble compounds with soap. Hard waters are divided into two classes : —

1. Those whose hardness is removed by boiling. This is known as temporary hardness.
2. Those whose hardness is not removed by boiling. This is known as permanent hardness.

Many waters possess both a temporary and permanent hardness. Such waters are improved by boiling, but are not rendered wholly soft.

Hard waters are not suitable for laundry purposes, especially when the hardness is largely permanent. They also often form incrustations in boilers. But unless the hardness be very great, it does not unfit the water for drinking purposes. There has been much discussion as to the possibility of hard waters producing goiter. It is well known that this disease is very prevalent in certain limestone districts, but that the use of hard water for

drinking is the cause of the disease has not been positively demonstrated. It would be best, however, for families in which a tendency to goiter prevails to use soft water.

Hard water has also been supposed to favor the formation of gravel. The writer has met with a few persons who are troubled with gravel only when using hard water.

Some hard waters have an irritating effect upon the bowels of those not accustomed to their use, producing in such persons diarrhea.

In case of the use of a public water-supply, it is the duty of the health authorities of the city to see that the water is wholesome, and it is the duty of the consumer to see that the water is not contaminated on his premises. Lead pipes and lead-lined storage tanks should not be used for conveying or storing cistern water. The pipes should be of iron, or better still, of block tin, or should be lined with tin.

THE DISPOSAL OF WASTE.

One of the most important questions connected with modern sanitation is as to the best methods of disposing of waste matter. When allowed to accumulate in the vicinity of homes, it may poison both the water and the air. Many of the older cities of southern Europe have become thoroughly saturated with filth, and for this reason cholera has found a fertile field for its growth in Spain, Italy, and southern France. Filth and disease always go hand in hand, the former leading the latter. Cleanliness invariably lessens the death-rate. Typhoid fever, cholera, and other diseases, whose growth and spread are plainly due to the accumulation and putrefaction of waste matter, should be stamped out of existence. With perfect cleanliness they would not be known.

It is the writer's object to give here some practical suggestions for the disposal of waste matter. Probably the disposal of human excrement deserves more care than any other waste. In cities where there is an abundant public supply of water, and where sewers are in use, the water-closet is the most convenient method, and it may be made perfectly safe. Where water-closets are used, the so-called "separate system" of sewerage is desirable. This system provides two sets of sewer conductors. One of these is

the ordinary brick sewer, and this system is used only for carrying off the storm-water. The other is made of small sewer pipes which convey the sewage proper, and which are connected with flushing tanks, by means of which they are periodically flooded with water and washed clean. The advantage of this method is easily understood. When the single system is used, the sewers are necessarily large, in order to carry off the great amount of rain-water. The bottom and sides of these sewers must be more or less rough, and they are flushed only at the time of heavy rain-falls; consequently much of the time the flow of sewage through them is slow, and the solid matter is deposited on the rough surfaces, where it decomposes with the formation of noxious gases, which escape through ventilators into the street, or pass through defective traps into the houses.

With the separate system the small sewer pipes with smooth inner surfaces are flushed three or four times a day, and their contents are swept out. It requires twenty-four hours at least for human excreta to decompose to such an extent as to evolve poisonous gases; therefore, if the pipes be flushed clean one or more times during the day, there can be but little danger from "sewer-gas."

However, whichever system of sewerage is in use, the individual should take certain precautions in arranging his water-closets. In the first place, water-closets should not be placed in living-rooms or in bedrooms. They should be located, if possible, in some detached part of the house. The kind of closet selected should be determined upon by some competent person. Changes and improvements in the patterns are being constantly made, so that should any preference be given at this time it might not hold good three months hence. The flushing-tank for the water-closet should not in any way be connected with the drinking water supply. The closet should be well trapped, and the trap should be so placed that it can be examined at any time without tearing up the floor or breaking into the wall. The habit which plumbers have of hiding all their work should be condemned. The soil-pipe should not be connected at any point inside of the house, at least with the other waste pipes, such as those from the bath-tub and stationary wash-bowls. The soil-pipe

should be ventilated by a pipe which should be as nearly perpendicular as possible, and which should extend above the roof of the house, and should not be placed near a window. This ventilation of the soil pipe is of the utmost importance, and should never be neglected.

When there is no system of sewerage, the dry-earth closet is the best method of disposing of human excrement. Indeed, upon sanitary grounds, the dry-earth system is in many respects more desirable than the use of water-closets; but the former requires possibly more care than the latter. Economically, also, the dry-earth system will prove the better when it comes into more general use, and the excrement is used as a fertilizer. A dry-earth closet properly kept is free from all noxious gases, and there is no possibility of the drinking water supply becoming contaminated from it.

There are many patterns of dry-earth closets in use, but the simplest may be made as efficient as the most complicated and costly. A cheap form is made by placing under the seat boxes or drawers lined with galvanized iron. There is placed conveniently a quantity of dry earth, and for each evacuation a small shovel of the earth, from one to two pounds, is thrown in. When the drawers are full they are removed, emptied, and replaced. The best earth to use is pulverized clay mixed with about one third its weight of loam. Ordinary garden soil may be used, if dried perfectly. Sifted coal ashes are almost or quite as good as any earth. Moreover, they are generally on hand, and to be disposed of in some way. The writer has used for his family a dry-earth closet for three years, and prefers the sifted coal ashes to any kind of earth. Gravel is not at all suitable.

With an ordinary family with not more than half a dozen members it is not necessary to empty the boxes more than once in three or four weeks. Their contents, which, if enough soil or ashes has been added, are wholly inodorous, may be emptied upon the garden. Here it is spaded in during the spring, and as a fertilizer amply repays for the time and trouble that has been taken with it. Several large cities in Europe have adopted the dry-earth system, and the waste is removed by those who desire to use it as a fertilizer.

The patent earth-closets are so arranged that the requisite amount of earth falls into the box in a manner similar to that by which the water-closet is flushed with water.

In case epidemics of any kind are prevailing in the neighborhood, it would be well to throw a handful of chloride of lime into the closet each day. And even when no epidemic prevails, but the weather is very hot, the same quantity of sulphate of iron (copperas) may be used daily. The cost of this substance is so small that it may be used freely when needed. Where many are using the closet, a vault may be dug beneath the seat, and made water-tight with brick and cement. Into this should be thrown each day a sufficient quantity of dry earth, and the vault should be thoroughly cleaned at least once a month.

The ordinary privy-vault with porous walls is an abomination. It has caused more deaths in this country than war and famine have produced. The liquid poisons from it filter into wells, while its gaseous exhalations float through the air. People breathe and drink their own excretions, and typhoid fever and kindred diseases slay tens of thousands annually. It is safe to say that the privy-vault is the origin of the majority of the cases of typhoid fever. As the country becomes more thickly settled, the dangers from the privy-vault increase, and they should be wholly abandoned.

In many places it is the custom to move the privy, and cover the contents of the vault with a few shovels of dirt as soon as the vault is filled. In this way from one to half a dozen repositories of filth are formed in the average village back yard in a few years. Such a condition is certainly a highly unsanitary one.

The waste-pipes from the bath-tub and stationary wash-bowls should be well trapped, with the traps where they can be readily examined ; and, as has been stated, these waste-pipes should have no connection, inside of the house at least, with the pipe from the water-closet. In the absence of sewage, the waste-pipes from the bath and bowls may be conducted into a cesspool. If the soil be gravelly, this cesspool should be lower than the bottom of the cistern, if the cistern be near. Its walls may be of stone or brick loosely laid, and a ventilating pipe should pass from the top of the cesspool and extend at least ten feet above the surface.

No kitchen or laundry waste should be allowed to pass into this cesspool. Since the water passing into this cesspool comes only from the bath and wash-bowls, it does not contain a great deal of organic matter, and will pass into the soil. The cesspool for the kitchen slops should be walled up and made water-tight. This cesspool should also be ventilated by means of a large vertical pipe. The top of this cesspool should have a manhole in its center, covered with a stone or iron slab, which can be removed in order to clean out the cesspool.

It is better for all pipes leading to sewers and cesspools to be disconnected, or furnished with gully traps, or with an air pipe just outside of the house, in order to prevent the possibility of gas passing from the sewer or cesspool into the house. All cesspools should be as far from the house as possible, and they should be cleaned at regular intervals. The contents of the kitchen cesspool may be used for fertilizing.

All solid kitchen waste should be removed daily by a scavenger, who does this without expense to the householder, or it may be dried under the kitchen stove in shallow pans and then burned in the kitchen fire, or, if in the country, it may be fed to hogs or other animals.

The dust swept from the floor should be burned, not thrown out into the yard. Ashes should be kept in a dry place, and if so kept they may often be disposed of without cost. The soap-maker will pay for dry wood ashes, and coal ashes are often sought for and used for filling in low places. Each fireplace and grate should be furnished with an ash-pit in which the winter's product may fall, and by which accident from fire is greatly lessened.

When a house is built, a plan of all its drainage pipes should be made and preserved, as with it a faulty pipe or joint may often be found with ease, when without it much work may be necessary in order to find where the trouble is.

THE SURROUNDINGS.

It would be better if residences were not built up in solid blocks. Even narrow passage-ways between the houses, through which the air can move freely, are to be preferred to unbroken

blocks. However, the price of land and of building material may compel some in the larger cities to deny themselves any further separation from their neighbor than that afforded by a single brick wall. But under no consideration should residences be built back to back, without any open space between the kitchens of the two houses. Even a few feet of open yard are of great benefit in affording ventilation, and in preventing excessive dampness. The yard should be kept scrupulously clean, and it should be rendered as beautiful as circumstances will permit. In summer there is no place for children in their play preferable to a nice spot out of doors.

The arrangement of cesspools, wells, cisterns, and outhouses has already been discussed. None of these should be allowed to contaminate the soil or air of the yard. Trees, not too dense or too near the house, are beneficial in shutting off dust and tempering the heat of the summer's sun. Besides, no other ornament about the premises can be more attractive than beautiful trees.

The location of all the outhouses of the immediate neighbors, as well as those directly on the premises, should be taken into consideration. The yard should be so graded that the surface water will not collect about the foundations of the house.

A little care and a trifling expense in the surroundings will amply repay any family, and will increase one's love for what should be the dearest spot on earth — home.

THE CARE OF THE HOME.

Suppose that a location has been selected, a house built, and the surroundings prepared according to the foregoing directions, the next thing is to see that all is kept in a sanitary condition. Some families would convert the most scientifically constructed house into a den of filth. Cleanliness should be the watchword of every family. So far as sanitary needs are concerned, all the directions under this head might be condensed into the few words, "Keep everything clean."

Decaying vegetables must not be left in the cellar. Fresh air is to be admitted daily into every part of the house, from cellar to garret. Bedrooms especially are to be thoroughly aired. Refuse bits of food are not to be left to mold on the pantry shelf,

nor should they be thrown out into the back yard. Better burn them. Offal from the preparation of food is not to be allowed to remain in the house, nor is it to be thrown out. It must be placed in the swill barrel, or burned. Dirty dishes are not to go unwashed, nor filthy floors unscrubbed, nor soiled linen unlaundered.

Fresh meat, milk, and other foods are not to be allowed to remain uncovered in living-rooms or bedrooms. The flour box is to be kept free, not only from the ravages of rats and mice, but from the dust of the room.

The drain from the ice-box should not be allowed to pass into a cesspool, sewer, or soil-pipe. Indeed, there should be no kind of connection between the ice-box, or other place in which food is kept, and any receptacle of waste matter.

The floors and seats of water-closets and earth-closets are to be kept clean. Drains and cesspools must be attended to. The supply of drinking-water must be kept free from every contamination.

Continued health is the reward for the care bestowed upon these details. The labor brings a rich return.

BUYING OR RENTING A HOUSE.

Great care should be exercised in renting or buying a house for family occupation. Many houses are now built purposely to rent or sell, and too many of these are constructed in a very flimsy manner. The object of the builder is to attract attention to his house, and money is spent in ornamentation, which should have been used in the more important parts of the structure. No one should place his family in a house until he has made a thorough investigation of its sanitary condition. The mere advertisement that "the house is furnished with the most approved sanitary appliances" should not be considered as a sufficient guaranty. Indeed, the statement of the owner or agent, that "everything is all right," is usually not to be relied on. The time will come when no one will be permitted to rent a death-trap in the shape of a house; but, unfortunately, at present the duty of seeing that everything is really all right devolves upon the person seeking a house. For this reason a few practical directions for house inspection may not be out of place here. The writer has known a

man, even after having been warned by a former tenant, who placed his family in a house whose sole recommendation was its attractive appearance, and to regret his rashness a few weeks later when typhoid fever had stricken his family. The dangers to health and life are too great to allow any one to be careless or indifferent in this matter.

The house offered for rent or sale should be visited by the one seeking a home, and thoroughly inspected in regard to its sanitary condition, as well as to its general appearance. The surroundings should be studied. The condition of the back yard, — especially the location of outhouses on the premises and those of the neighbors, — the location and condition of cesspools, privy-vaults, cisterns, or wells, if such be present, should undergo careful inspection. What the sanitary arrangements should be has been already sufficiently indicated.

The cellar should be visited, and if its walls be cracked, damp, and covered with mold, if water stands upon its floor, and if light and ventilation are not provided for, seek some other habitation. It is better far to sleep in the open air, with no roof but the sky, and no bed but a few blankets placed on the dry earth, than to live in a house built over a reeking cesspool; and such a cellar is nothing more nor less than a cesspool.

The general construction of the house should be closely scrutinized. Observe the height of the first floor above the level of the street, the proportion of the lot covered by the house, the arrangement and size of the rooms, and the condition of the floors, ceilings, and walls. Of course, newly constructed walls are always damp. A great amount of water is used in the mortar and plastering, and much of this must evaporate before the building is fit for occupation. Neither should a house freshly painted with lead paints be occupied until the paint is well dried. The living-rooms should be placed upon the sunny, airy side of the house. The bedrooms especially should be examined with reference to their size and means of ventilation. The floors should be of seasoned wood, well jointed. This is very desirable, as it prevents the accumulation of dirt under the floors, and permits the free use of water in scrubbing the upper floors without danger of injury to the ceilings of the lower rooms.

“Skin” houses, put up by “jerry” builders simply to rent or sell at the highest price, can usually be recognized by careful inspection. Extra ornamentation will generally be observed, but if a few months have elapsed since its construction, doors will be noticed not to close tightly, the woodwork is shrunken, the window-sashes do not move easily, and too frequently the foundations have settled and the walls cracked.

If the house be furnished with any plumbing, this should undergo thorough inspection. A map showing the distribution of the pipes, unless all are in plain view, should be furnished by the owner. In many old houses large brick drains are found in the cellar. These are always bad. In them a great quantity of filth accumulates. They are seldom sufficiently flushed. Such a condition should lead one to reject a house for residence. If the drain in the cellar be of earthen pipe, its joints should be examined, for they are often imperfect and allow of the escape of both gaseous and liquid contents. In this way the cellar floor becomes impregnated with filth and from it noxious exhalations rise into the rooms above. The writer has known of more than one instance in which one of these drains has been broken by settling, and the consequence was that a regular cesspool was formed instead of the drain. In one instance the break occurred near a cistern, and much of the chamber and kitchen slops soaked through the imperfect cistern, polluting the water; and this was the probable cause of the typhoid fever which attacked four of the inmates of the house. Still worse is the box drain made of plank. Often at the junction of the vertical pipe with such a drain, the wood decays, and a filthy cesspool is formed.

Unfortunately, in most cities, the sewers pass along the street in front of the house, and the sewage is collected in the back part of the cellar, and carried by a drain under the floor for the entire length of the cellar, passing out under the front wall on its way to the sewer. The best place for the sewer is in the rear of the house, but when in front, the drain should be carried around the house; or, if through the cellar, it should consist of an iron pipe freely exposed along its entire length, and with sufficient fall to give a rapid current. Its grade should be uniform, and free from depressions in which accumulations might occur.

The proper arrangement of the soil-pipe has already been referred to. It should be of iron, not of lead. Leaden soil-pipes are often corroded and leaky. The ventilation of the soil-pipe should be by means of a pipe extending above the roof. The water conductor from the roof should not be made to do service as a ventilating pipe. Moreover, when the rain-water conductor empties into the soil-pipe, the force of the current through it will siphon the traps above unless they are all ventilated.

The location of all traps should be ascertained, and it should be seen that none of the pipes are either clogged or leaky. The desirability of the separation of the water-closet from the bath and wash-bowls has already been referred to. It is not desirable to have even stationary wash-bowls in bedrooms.

If there be a water-supply, it is well to see, before renting or buying the house, that all the pipes are in good order and so protected that they will not freeze. If the drinking-water be stored in a tank, see that the tank is not lined with lead. All water-pipes should be well supported, or they may sag and break.

The inspection of the method of heating and ventilating the building may be made from the rules in regard to these points already given. The same is true in regard to the disposal of garbage and the construction of earth-closets.

TENEMENT HOUSES.

Every workingman should strive to secure a home, and the tenement house can never be a home in any proper sense. The privacy and comfort of a home can never be secured in a tenement house. Here people of all kinds are congregated, and the noise of the boisterous will disturb the rest of the quiet; the filth of the slovenly is likely to injure the health of those who endeavor to keep everything about them clean; and the habits of the immoral are distasteful to the moral. However, on account of poverty, many good people are compelled, for a time at least, to occupy rooms in a tenement house. Unfortunately, the majority of such houses are built for the purpose of making as large pecuniary return to the owner as possible, and he cares but little about the character of his tenants, or the manner in which they live, so long as their rent is paid. In the large tenement houses of New

York, all kinds of occupations are carried on, and many of them in the most slovenly manner.

The tenement should have a cellar under every part of it. The cellar should be divided into compartments by brick walls. No part of it should be used for sleeping-rooms, and it should be perfectly dry and well ventilated. The walls and floors throughout the building should be deadened. The halls should be lighted at both ends. They should be wide, and the space should not be encroached upon by using them as storage-rooms.

Each water-closet should be thoroughly trapped and ventilated by a pipe extending above the roof. The ends of these pipes should not have return bends, nor be furnished with caps which are likely to obstruct the upward current.

The water-pipes from baths, stationary wash-bowls, laundry tubs, and sinks should have no connection with the water-closets, and should discharge into the open air, outside the building over gullies, or should pass through air-traps outside of the house, the air-trap having a large ventilating pipe carried above the roof. In this way there will be no connection between the drain or sewer and the inside of the house, except through the ventilated soil-pipe of a trapped water-closet.

The floor and seat of every water-closet should be scalded with hot water and soap at least twice a week. There should be a separate closet for every fifteen persons.

The laundry work should be done in some special place, and not in the living or sleeping rooms. The water-supply should be abundant, and where the water-closets are used, not less than thirty gallons per day for each inmate of the house. Kitchens and bedrooms should be separate. The minimum amount of cubic space allowed should be five hundred cubic feet per head, and this amount will answer only when ample provision for ventilation exists.

Each room must be furnished with a separate flue for ventilation, or a foul-air shaft, which should be heated. These shafts may be heated by being placed in the same chimney with smoke flues, or in case the entire building is heated by steam, a number of foul-air shafts may be brought together in the attic and heated by a steam coil. If this is done, there should be no means of

cutting off the steam from this coil. The method of removing foul air by means of a large central shaft may do when there are conductors leading from each room to such a shaft, but when it depends upon the foul air from distant rooms reaching the shaft by means of open doors or through transoms, it will often fail. Moreover, all attempts to ventilate a number of rooms on different floors through the same flue or shaft, it matters not how large it may be, will always prove more or less of a failure, because, on account of difference in temperature, the foul air from one room will often pass into another.

II.

HEALTHY FOODS.

FOODS AND FOOD-STUFFS.

Since particles of our bodies are constantly being worn away and cast out, new material must be introduced in order to make good the loss. Again, it is necessary that our bodies should be supplied with force or energy, that animal heat, muscular movement, and nervous activity may be maintained. For these reasons foods are taken.

Foods may be defined as substances which when taken into the body aid in building up or repairing tissue, or, by being oxidized or burned, generate force or energy.

Our ordinary foods consist of certain food-stuffs or elementary principles, together with a greater or less amount of wholly indigestible substances. Thus, oatmeal is a food containing the food-stuffs, gluten, starch, and fat, with a certain amount of cellulose (cell structure) which is of no service to the body. The nutritive value of a food depends upon the kind and amount of these food-stuffs that it contains. Since no satisfactory discussion of foods can be carried on until we become acquainted with those constituents upon which their values depend, we will briefly consider the food-stuffs. Fortunately they are not numerous, and may be divided into the following classes : —

1. Albumens or proteids.
2. Fats or oils.
3. Starches or carbohydrates.
4. Inorganic salts.
5. Water.

Albumens or Proteids. To this group belong some of the most important food-stuffs. They all contain nitrogen, and for this reason the term "nitrogenous constituents" is used sometimes instead of proteids or albumens. The chief proteids are ordinary albumen, as the white of egg, casein of milk, fibrine of meat, gluten of grains and flour, and legumine of pease and beans. The amount of proteid in the different foods is variable, — thus, meat contains from 15 to 23 per cent; milk from 3 to 4; pease and beans from 23 to 27; grains and flours from 8 to 11; bread from 6 to 9; and potatoes and greens from 1 to 4.

When we remember that the blood, muscles, and all the vital organs contain proteids as their chief constituents, we can understand the importance of taking food rich in one or more members of this group. The average workingman requires in his daily food the equivalent of four or five ounces of pure proteid.

The digestive and assimilative organs have the power of converting one proteid into another, but they are not able to form a proteid out of a fat or a starch. For this reason no other food-stuffs can, without injury, be a substitute for the proteids in our food for any length of time.

Fats. Fats when oxidized or burned in the body produce more force than will arise from the combustion of an equal weight of any other food-stuff. In cold countries the inhabitants instinctively consume large amounts of fat on account of the heat which is generated from it. The workingman requires not less than two ounces of fat per day. Fats are best digested when taken in a finely divided state.

Starches or Carbohydrates. To this group belong a number of substances of similar chemical composition, and the majority belong to vegetable foods. The most important are starch, sugar, gum, and dextrine.

Like the fats, they are consumed in giving energy to the body, though a much larger amount of the carbohydrates is required to

yield the same result to the body. The daily need of this food-stuff by the average workingman is between seventeen and eighteen ounces.

The cellulose or cell structure of plants is closely allied to the members of this group, and any cellulose that is absorbed must first be converted into sugar.

Mineral Salts. The bones of the adult man contain as much as 70 per cent of mineral matter, the greater part of which is the phosphate of lime. Smaller quantities of the phosphate of magnesium and the carbonate of lime also exist in bones. The muscles, blood, and tissues also contain salts of potash and soda, and some iron. One of the most important mineral foods is common salt or the chloride of sodium.

Water. About 70 per cent of the adult body is water. It forms the greater part of the vital fluid, in which it serves as the carrier of other substances, some in solution, others held in suspension. Besides the fluids, the solid tissues contain a greater or less proportion of water; the muscles contain as much as 75 per cent. There is also great loss of water by evaporation from the skin, by exhalation from the lungs, and by excretion from the kidneys and bowels. This loss must be made good by the drinking of water, and by taking foods more or less rich in this constituent. Meat contains about 75 per cent; milk, on an average, 87; bread, 35; and vegetables and fruits, from 70 to 90.

THE NUTRITIVE VALUE OF FOODS.

The nutritive value of a food will depend upon the proportion and kind of food-stuffs which it contains. However, there are many conditions which influence the nutritive value of a food.

In order for this to be high, its constituents must not only be rich in food-stuffs, but they must be digestible. By improving the digestion, the appearance, odor, and taste of a food increase its nutritive value. A certain method of cooking makes a food more acceptable to one, while another is pleased with a wholly different manner of preparation. The taste and odor, when pleasing, stimulate the flow of the digestive juices; and not only will more of the food be taken as a result, but a greater proportion of that which is taken will be digested and assimilated.

It is also quite essential that the volume of food taken should be large enough to satisfy the appetite, and still not so great as to prove burdensome. For this reason foods poor in certain food-stuffs are usually taken with some other food rich in these constituents. Thus the potato, which contains not more than 2 per cent of proteids, is usually eaten with meat, which contains from 14 to 21 per cent of proteids; or we may say with equal propriety, that because meat contains no starch, man has learned to take with it the potato, whose chief constituent is starch. If one should attempt to live upon potatoes only, the weight of the food that he would have to take each day in order to get the minimum quantity of proteids upon which life could be sustained would not be less than ten pounds. Dr. Edward Smith actually found some of the poorest Irish laborers confined almost exclusively to potatoes, and consuming the amount given above. This would lead to distension of the digestive organs, and render one dull and stupid. The digestive organs of plant-eating animals form from 15 to 20 per cent of the entire body weight. In flesh-eating animals the digestive organs form only from 5 to 6 per cent of the body weight; in man the proportion is from 7 to 8 per cent. Thus man, upon this point at least, holds an intermediate position between flesh-eating and plant-eating animals, being more closely allied to the former than to the latter. However, as the proper cooking of the food aids digestion, man may digest some of the vegetable food even more quickly and completely than the ox can; but his food should not consist wholly of vegetable products. A certain amount of animal food, while not absolutely necessary to the maintenance of life, is essential to man's highest development.

The nutritive values of the different foods, as shown by the per cent of the various food-stuffs which they contain, will be given under the special description of each food.

THE ECONOMIC VALUE OF FOODS.

That food is most economical which contains the greatest amount of the most valuable food-stuffs for the least money.

The average workingman requires daily in his food, in round numbers, not less than four ounces of proteids, two ounces of fat,

and eighteen ounces of carbohydrates. What combination of foods will furnish these for the least money? This is an important question; but in answering it, it should always be borne in mind that the foods suggested are to be healthy ones. A combination which would cost but little, but which would lead to dyspepsia or other ills, might in the end be quite costly.

The following formulas show some combinations, and give the approximate cost. It will be seen that the required amount, or more, of each food-stuff is present : —

CLASS I. — *Very cheap daily rations without meat.*

No. 1.

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
26 oz. bread	1.82	0.13	14.35	5
2 oz. oatmeal	0.29	0.12	1.30	$\frac{1}{2}$
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$
24 oz. potatoes	0.48		4.96	$1\frac{1}{2}$
4 oz. beans	0.92	0.08	2.14	1
2 oz. lard		1.98		$1\frac{1}{4}$
	<hr/> 4.05	<hr/> 2.88	<hr/> 24.45	<hr/> $12\frac{3}{4}$

No. 2.

26 oz. bread	1.82	0.13	14.35	5
2 oz. fat cheese	0.50	0.58	0.04	$1\frac{1}{2}$
1 pt. milk	0.54	0.57	0.76	3
16 oz. potatoes	0.32		3.31	1
4 oz. beans	0.92	0.08	2.14	1
1 oz. lard		0.99		$\frac{5}{8}$
1 oz. sugar			0.94	$\frac{1}{2}$
3 5-oz. cups tea				1
	<hr/> 4.10	<hr/> 2.35	<hr/> 21.54	<hr/> $13\frac{5}{8}$

No. 3.

16 oz. bread	1.12	0.08	8.83	3
4 oz. oatmeal	0.58	0.24	2.60	1
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
32 oz. potatoes	0.64		6.62	2
1 oz. lard		0.99		$\frac{5}{8}$
5 oz. fat cheese	1.25	1.45	0.11	$3\frac{3}{4}$
	<hr/> 4.13	<hr/> 3.33	<hr/> 19.86	<hr/> 13 $\frac{7}{8}$

No. 4.

16 oz. bread	1.12	0.08	8.83	3
6 oz. oatmeal	0.87	0.36	3.90	$1\frac{1}{2}$
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$
4 oz. beans	0.92	0.08	2.14	1
32 oz. potatoes	0.64		6.62	2
1 oz. lard		0.99		$\frac{5}{8}$
3 5-oz. cups tea				1
	<hr/> 4.09	<hr/> 2.08	<hr/> 23.19	<hr/> 12 $\frac{5}{8}$

No. 5.

26 oz. bread	1.82	0.13	14.35	5
1 oz. rice	0.16	0.02	1.53	1
1 egg	0.12	0.12		$1\frac{1}{4}$
1 oz. lard		0.99		$\frac{5}{8}$
4 oz. beans	0.92	0.08	2.14	1
4 oz. fat cheese	1.00	1.16	0.08	3
	<hr/> 4.02	<hr/> 2.50	<hr/> 18.10	<hr/> 11 $\frac{7}{8}$

No. 6.

26 oz. bread	1.82	0.13	14.35	5
1 oz. macaroni	0.09		0.76	$1\frac{1}{4}$
4 oz. beans	0.92	0.08	2.14	1
32 oz. potatoes	0.64		6.62	2
1 oz. lard		0.99		$\frac{5}{8}$
4 oz. fat cheese	1.00	1.16	0.08	3
1 oz. sugar			0.94	$\frac{1}{2}$
3 5-oz. cups of tea				1
	<hr/> 4.47	<hr/> 2.36	<hr/> 24.89	<hr/> 14 $\frac{3}{8}$

Although the rations suggested in the preceding tables do not contain meat, they do contain more or less animal food, and are

healthy. However, the writer would not recommend one to adhere constantly to them, as some meat, while not necessary to health, does undoubtedly increase bodily vigor.

The small amount of really nutritive matter in tea is not considered, and the reader is referred to the articles "Tea" and "Coffee" for a true explanation of the food values of these drinks.

It will be seen that among vegetable foods in common use, oatmeal, beans, and potatoes are the cheapest. Since the prices vary so greatly, not only at different times, but in different parts of the country at the same time, the price at which the computation is made is given in each instance; and if the prevailing price differs from that given, any one can ascertain the change that would be produced in the total cost of the daily rations.

CLASS II. — *Very cheap daily rations with meat.*

No. 1.

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
26 oz. bread	1.82	0.13	14.35	5
2 oz. codfish	1.60	0.02		1¼
2 oz. lard		1.98		1¼
16 oz. potatoes	0.32		3.31	1
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	½
3 5-oz. cups tea				1
	<hr/> 4.28	<hr/> 2.70	<hr/> 19.36	<hr/> 13

No. 2.

16 oz. bread	1.12	0.08	8.83	3
1 oz. codfish	0.80	0.01		⅝
1 oz. lard		0.99		⅝
32 oz. potatoes	0.64		6.62	2
2 oz. bacon	0.29	0.75		1½
4 oz. beans	0.92	0.08	2.14	1
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	½
3 5-oz. cups tea				1
	<hr/> 4.31	<hr/> 2.48	<hr/> 19.29	<hr/> 13¼

No. 3.

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
26 oz. bread	1.82	0.13	14.35	5
2 oz. oatmeal	0.29	0.12	1.30	$\frac{1}{2}$
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$
2 oz. codfish	1.60	0.02		$1\frac{1}{4}$
8 oz. potatoes	0.16		1.65	$\frac{1}{2}$
2 oz. lard		1.98		$1\frac{1}{4}$
3 5-oz. cups tea				1
	<hr/> 4.41	<hr/> 2.82	<hr/> 19.00	<hr/> 13

No. 4.

26 oz. bread	1.82	0.13	14.35	5
1 oz. codfish	0.80	0.01		$\frac{5}{8}$
2 oz. lard		1.98		$1\frac{1}{4}$
6 oz. beans	1.38	0.12	3.21	$1\frac{1}{2}$
2 oz. fat cheese	0.50	0.58	0.04	$\frac{1}{2}$
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$
3 5-oz. cups tea				1
	<hr/> 5.04	<hr/> 3.39	<hr/> 19.30	<hr/> $13\frac{3}{8}$

No. 5.

26 oz. bread	1.82	0.13	14.35	5
2 oz. fat cheese	0.50	0.58	0.04	$1\frac{1}{2}$
2 oz. bacon	0.29	0.75		$1\frac{1}{2}$
4 oz. beans	0.92	0.08	2.14	1
1 pt. milk	0.54	0.57	0.76	3
1 oz. sugar			0.94	$\frac{1}{2}$
3 8-oz. cups coffee				2
	<hr/> 4.07	<hr/> 2.11	<hr/> 18.23	<hr/> $14\frac{1}{2}$

No. 6.

26 oz. bread	1.82	0.13	14.35	5
2 oz. codfish	1.60	0.02		$1\frac{1}{4}$
1 oz. bacon	0.14	0.37		$\frac{3}{4}$
2 oz. lard		1.98		$1\frac{1}{4}$
16 oz. potatoes	0.32		3.31	1

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
½ pt milk	0.27	0.28	0.38	1½
1 oz. sugar			0.94	½
3 8-oz cups coffee				2
	<hr/> 4.15	<hr/> 2.78	<hr/> 18.98	<hr/> 13¼

CLASS III. — *Moderately cheap daily rations.*

No. 1.				
	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
16 oz. bread	1.12	0.08	8.83	3
8 oz. beef (very fat)	1.36	2.12		8
32 oz. potatoes	0.64		6.62	2
2 oz. oatmeal	0.29	0.12	1.01	½
1½ pt. milk	0.81	0.85	1.14	4½
1 oz. sugar			0.94	½
	<hr/> 4.22	<hr/> 3.17	<hr/> 18.54	<hr/> 18½

No. 2.				
26 oz. bread	1.82	0.13	14.35	5
8 oz. beef (moderately fat)	1.68	0.45		9
16 oz. potatoes	0.32		3.31	1
1½ pt. milk	0.81	0.85	1.14	4½
1 oz. butter		0.83		1½
	<hr/> 4.63	<hr/> 2.26	<hr/> 18.80	<hr/> 21

No. 3.				
26 oz. bread	1.82	0.13	14.35	5
4 oz. mutton (very fat)	0.60	1.44		4
4 oz. beans	0.92	0.08	2.14	1
1 qt. milk	1.08	1.14	1.52	6
	<hr/> 4.42	<hr/> 2.79	<hr/> 18.01	<hr/> 16

No. 4.				
26 oz. bread	1.82	0.13	14.35	5
8 oz. mutton (moderately fat)	1.36	0.48		9
32 oz. potatoes	0.64		6.62	2
½ pt. milk	0.27	0.28	0.38	1½
1 oz. sugar			0.94	½

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
2 oz. butter		1.66		3
3 8-oz. cups coffee				2
	4.09	2.55	22.29	23
No. 5.				
26 oz. bread	1.82	0.13	14.35	5
4 oz. pork (lean)	0.80	0.28		3
2 oz. fat cheese	0.50	0.58		1½
32 oz. potatoes	0.64		6.62	2
½ pt. milk	0.27	0.28	0.38	1½
1 oz. butter		0.83		1½
3 8-oz. cups coffee				2
	4.03	2.10	21.35	16½
No. 6.				
26 oz. bread	1.82	0.13	14.35	5
2 oz. sausage (best quality)	0.57	0.80		1¼
2 oz. oatmeal	0.29	0.12	1.30	½
4 oz. beans	0.92	0.08	2.14	1
1 oz. bacon	0.14	0.37		¾
1 pt. milk	0.54	0.57	0.76	3
1 oz. butter		0.83		1½
1 oz. sugar			0.94	½
3 5-oz. cups tea				1
	4.28	2.90	19.49	14½

CLASS IV.—*More expensive daily rations.*

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
16 oz. bread	1.12	0.08	8.83	3
2 eggs	0.24	0.24		4
2 oz. butter		1.66		4
1 qt. milk	1.08	1.14	1.52	8
1 oz. bacon	0.14	0.37		¾
1 oz. string beans	0.03		0.06	2
8 oz. mutton	1.36	0.48		9
32 oz. potatoes	0.64		6.62	2
1 oz. sugar			0.94	½
1 oz. dried fruit	0.02		0.55	1¼
	4.63	3.97	18.52	34½

No. 2.				
	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost, cts.
16 oz. bread	1.12	0.08	8.83	3
2 oz. oatmeal	0.29	0.12	1.30	$\frac{1}{2}$
2 oz. sugar			1.88	1
1 pt. milk	0.54	0.57	0.76	3
1 oz. macaroni	0.09		0.76	$1\frac{1}{4}$
8 oz. beef	1.68	0.44		9
32 oz. potatoes	0.64		6.62	2
2 oz. salmon	0.32	0.11		$1\frac{1}{2}$
2 oz. butter		1.66		4
3 8-oz. cups coffee				2
	<hr/> 4.68	<hr/> 2.98	<hr/> 20.15	<hr/> 27 $\frac{1}{4}$

No. 3.				
20 oz. bread	1.40	0.10	11.04	4
4 oz. beef	0.84	0.22		$4\frac{1}{2}$
2 oz. butter		1.66		4
2 oz. fat pork	0.29	0.75		$1\frac{1}{2}$
2 oz. beans	0.46	0.04	1.07	$\frac{1}{2}$
2 oz. starch			1.67	2
2 oz. sugar			1.88	1
2 oz. dried fruit	0.05		1.11	$2\frac{1}{2}$
8 oz. potatoes	0.16		1.65	$\frac{1}{2}$
8 oz. lean mutton	1.36	0.48		8
3 8-oz. cups coffee				2
$\frac{1}{2}$ pt. milk	0.27	0.28	0.38	$1\frac{1}{2}$
	<hr/> 4.83	<hr/> 3.53	<hr/> 18.80	<hr/> 32

No. 4.				
20 oz. bread	1.40	0.10	11.04	4
2 oz. oatmeal	0.29	0.12	1.30	$\frac{1}{2}$
1 qt. milk	1.08	1.14	1.52	6
2 oz. sugar			1.88	1
2 oz. butter		1.66		4
2 oz. mackerel	0.46	0.13		$1\frac{1}{2}$
8 oz. chicken	1.86	0.19		$12\frac{1}{2}$
16 oz. potatoes	0.32		3.30	1
8 oz. fruit (as apple sauce) . . .			0.80	1
	<hr/> 5.41	<hr/> 3.34	<hr/> 19.84	<hr/> 31 $\frac{1}{2}$

No. 5.

	Proteids. oz.	Fats. oz.	Carbohydrates. oz.	Cost. cts.
26 oz. bread	1.82	0.13	14.35	5
2 oz. sausage	0.57	0.80		2
2 oz. butter		1.66		4
8 oz. lean beef	1.68	0.08		9
16 oz. potatoes	0.32		3.30	1
2 oz. macaroni	0.18		1.53	2½
1 qt. milk	1.08	1.14	1.52	6
2 oz. sugar			1.88	1
3 8-oz. cups coffee				2
	<hr/> 5.65	<hr/> 3.81	<hr/> 22.58	<hr/> 32½

No. 6.

26 oz. bread	1.82	0.13	14.35	5
2 eggs	0.24	0.24		4
2 oz. butter		1.66		4
8 oz. lean beef	1.68	0.08		9
2 oz. beans	0.46	0.04	1.07	½
1 oz. bacon	0.14	0.37		¾
16 oz. potatoes	0.32		3.30	1
1 oz. sugar			0.94	½
1 pt. milk	0.54	0.57	0.76	3
3 8-oz. cups coffee				2
	<hr/> 5.20	<hr/> 3.09	<hr/> 20.42	<hr/> 29¾

To the cost of the raw food, as given in the preceding tables, is to be added the cost of cooking, fuel, keeping the table, and of furnishing seasoning, such as salt, pepper, and mustard. Where six or more persons eat together, the cost of the above items, including enough to pay the wages of the cook and waiters, is from 35 to 50 cents per week for each boarder. This increases the daily cost of board by from 5 to 7 cents above the figures given in the tables.

ANIMAL FOODS.

MEATS — GENERAL PROPERTIES.

A large proportion of our daily food consists of material derived from the animal world. Other animals take vegetable food

and build it up, so that it approximates in physical and chemical properties the flesh of man. Of the foods thus derived from the animal kingdom, meat is one of the most important. Meat consists of different food-stuffs, as water, mineral salts, albumen, and fat. On an average, 100 parts of beef consist of 72 parts of muscle, 8 parts of fat, and 20 parts of bone (including cartilage and tendon). The age of the animal and the manner in which it has been fitted for market have a marked effect upon the composition of the flesh. Veal contains 3 per cent more of water, and a corresponding amount of solid substance, than lean beef. Fat beef may contain as much as 10 per cent less of water than lean beef. The same is true of the difference between mutton and lamb. Of all the kinds of flesh eaten, fat bacon contains the least amount of water. The average per cent of water in bacon is 60, while that in lean beef is 75. The flesh of wild fowl, chickens, and pigeons furnishes on an average 77 per cent of water. Fish is especially rich in water, the carp yielding 80 per cent. The fat in lean beef, veal, and mutton may be as low as from 1 to $1\frac{1}{2}$ per cent, while that of fat beef is 14, of fat mutton 9, veal 6, and bacon 24. Along with these variations in the amounts of water and fat, there are corresponding changes in the quantity of nitrogenous material. As a rule, fish is poorest in nitrogenous substance, the per cent in carp and salmon being 13, in pickerel 15; fat veal, mutton, and bacon, 15; fat beef, 16; lean beef, 22.

The following rules may govern us in the selection of meats: —

Good beef has a reddish brown color, and contains no clots of blood. Well-nourished beeves furnish a flesh which while raw is marbled with spots of white fat; it is firm and compact. Old, lean animals furnish a flesh which is tough, dry, and dark; the fat is yellow. Veal is slightly reddish, and has tender, white fibers. The fat is not distributed through the lean, as in beef. The same is true of mutton. In well-nourished animals white fat accumulates along the borders of the muscles.

Pork is rose-red, and has fat distributed through the muscle. The lard is white, and lies in heavy deposit under the skin. The flesh of an old boar is dark, and often has an unpleasant odor and taste.

Good beef is not of a pale pink color, and such a color indicates that the animal was diseased. Good beef does not have a dark purple hue, for this color is evidence that the animal has not been slaughtered, but has died with the blood in its body, or has suffered from some acute febrile affection.

Good beef has but little or no odor, or if any odor is perceptible it is not disagreeable. In judging as to the odor of meat, pass a clean knife, which has been dipped in hot water, through it, and examine subsequently as to the odor of the knife. Tainted meat often gives off a plainly perceptible and disagreeable odor while being cooked.

Good meat is elastic to the touch. Meat that is wet and flabby should be discarded. It should not become gelatinous after being kept in a cool place for two days, but should remain dry on the surface and firm to the touch.

The flesh of young animals is more tender than that of the adult, but experiment, as well as experience, has shown that the former is less easily digested. For instance, veal and lamb are less easily digested, and tax the stomach of the dyspeptic more than beef and mutton. Dr. Smith has shown that this is largely due to the fact that the flesh of young animals cannot be perfectly masticated. The tissues of the young animal are less stimulating, less nutritious, and more gelatinous than the tissues of the adult animal. On the other hand, it is well known that an animal may be so old and poorly nourished that its flesh well-nigh defies both mastication and digestion. The common breeds of cattle are best fitted for the market at the age of 7 years; the better breeds earlier.

It makes a difference whether the special meat be served in or out of season. Beef is in highest season in the early months of winter, after the animal has been furnished abundant pasturage, though not absolutely out of season at any time of the year. Fresh pork is wholly out of season during the hot months of summer. Christison found in salmon, before the spawning season, 18.5 per cent of fat and 39 per cent of solids; after the spawning season, 1 per cent of fat and 20 per cent of solids.

In most cases, animals are fattened for the table. Some fat is desirable, as it renders the meat more juicy, and develops an

agreeable flavor. But the process of fattening is often carried too far. Fat should be taken in a finely divided state, for when swallowed in lumps it is well-nigh indigestible. Many a child which has been reprov'd for refusing to eat fat meat will readily take the same amount of fat, as butter, spread upon bread. The manner in which the animal has been killed affects the meat. Slaughtering is usually so conducted as to remove as much as possible of the blood. Either death is produced by the withdrawal of blood, or the blood is withdrawn as soon as possible after death. The removal of the blood enables the meat to be kept with more ease ; it also improves the flavor.

In warm countries meat is often cut from the animal and cooked as soon as death is produced, and before *rigor mortis* (the stiffness of death) sets in. While the rigor is on, the meat is more difficult of mastication and digestion. In temperate latitudes the flesh is usually kept until this rigidity naturally passes off. This may be aided by pounding the meat after it has been cut into thin pieces. With us, the only animals which are cooked before rigor sets in are fish, frogs, some mollusks, frequently domestic fowls, and sometimes wild game.

The flesh of wild animals is richer in nitrogen and flavor, and contains less fat, than that of the same species kept in domestication.

Meat which has been frozen decomposes easily after being thawed out, and when cooked it is dry and insipid.

The ancient Egyptians and Chaldeans were acquainted with the fact that the flesh of diseased animals might harmfully affect those eating of it, and among them the use of such flesh as food was prohibited. The strictest measures were taken to see that the meat furnished their kings and priests was obtained from healthy animals. Even during the dark ages this prohibition of the use of flesh from diseased animals continued. During the eighteenth century, however, it was found that the inhabitants of besieged towns ate of such food when starvation threatened them, and without any marked detriment to health. The flesh of a diseased animal does not necessarily convey the malady to the consumer ; but in order to prevent such transmission the cooking must be thorough. That phthisis (consumption) may be imparted to dogs

by feeding them upon tubercular flesh has been proven experimentally. Dr. Livingston states that the use of flesh of animals afflicted with pleuro-pneumonia produces carbuncle. In Germany and France many cases of anthrax or malignant pustule in man have arisen from partaking of the flesh of animals with this disease. The flesh of sheep with the small-pox, and of oxen with the cattle plague, has affected those partaking of it. Then there are the parasites, trichinæ, cysticerci (in "measly" meat), and echino-cocci (flukes), which may be transmitted to man. If every part of the meat be raised to a temperature of 160° Fahr. during cooking, these parasites are destroyed; but if the blood-red juices exude from the interior of the piece of meat on being cut, the parasites, if present, may still retain their vitality.

The eating of the flesh of diseased animals is admissible only when no better food can be secured, and when starvation threatens. The sale of such meat is prohibited by law, and any one guilty of such an outrage should be punished to the fullest extent.

The flesh of a healthy animal may become poisonous from partial decomposition. By the putrefaction of albuminous substances, certain organic poisons are generated. The symptoms produced resemble those of severe cholera morbus, and a fatal termination is not infrequent. These cases most frequently arise from eating sausage and canned meats, though they may be due to any meat which is partly putrid.

Gerlach, director of the Royal Veterinary School at Berlin, gives the following list of meats which should not be eaten:—

1. The flesh of all animals which have died of internal diseases, or which have been killed while suffering from such diseases, and of healthy animals which have been killed by overdriving.
2. The flesh of animals with contagious diseases which may be transmitted to man.
3. The flesh of animals which have been poisoned.
4. The flesh of animals with severe infectious diseases, such as blood poisoning.
5. Flesh which contains parasites that may be transmitted to man.
6. All putrid flesh.

METHODS OF COOKING MEAT.

In boiling meat, if it is desired to retain the juices, the piece should be large, and should be placed at once in boiling water, and the boiling continued for five minutes. Then the temperature of the water should be allowed to fall to 160° Fahr., at which point it should be maintained until the meat is done. The boiling water coagulates the outside of the meat, and thus prevents the escape of the juices. If the temperature be kept at or near the boiling point throughout the process, the flesh shrinks, becomes tough, loses in flavor, and is finally digested with much difficulty.

On the other hand, if the object of the boiling is to make a good soup, the meat should be cut into small pieces, placed in cold water, and the temperature gradually raised to from 150° to 160° Fahr. Chicken broth is the most nutritious, mutton next, while beef makes a very weak broth. By boiling, meat loses, as a rule, from 25 to 30 per cent of its weight.

In roasting, the oven should at first be very hot; then it should be cooled down, and the process continued at a low temperature. Since the heat applied to every portion of the outside of the meat cannot be so uniform in roasting as in boiling, the loss is usually greater in the former than in the latter.

Stewed meat is that roasted in its own juices. The meat is cut into small pieces, and the cooking should be carried on at as low a temperature as possible. The extracted matter should be served with the meat. Often vegetables are stewed with the meat, thus improving the flavor of the former.

Proper cooking renders the meat more agreeable to the senses of sight, smell, and taste, and thus through the nervous system it stimulates the flow of the digestive fluids. One of the most fruitful sources of error in the cooking lies in using too high a temperature.

BRIEF CONSIDERATION OF THE MEATS IN COMMON USE.

Beef. Among all civilized people beef is regarded as the principal animal food. By common consent, we admit that beef is more nutritious than any other kind of flesh. This universal

opinion is supported by the investigations of science. There is a larger proportion of nutritious material in beef than in the flesh of the sheep or hog. Beef is of closer texture, and is fuller of red-blood juices. It is richer in flavor than the flesh of any other domestic animal, and a smaller amount of it will satisfy hunger. Siegert gives the following figures, showing the average per cent composition of the flesh taken from different parts of a lean and a fat ox : —

	LEAN OX.				FAT OX.		
	Neck.	Sirloin.	Shoulder.		Neck.	Sirloin.	Shoulder.
Water,	77.5	77.4	76.5		73.5	63.4	50.5
Fat,	0.9	1.1	1.3		5.8	16.7	34.0
Muscle,	20.4	20.3	21.0		19.5	18.8	14.5

On an average, 65 per cent of the live weight of an ox may be converted into salable meat, the exact proportion varying with the degree to which the animal has been fattened. The greater the amount of fat, the less the proportion of bone and other waste.

Not only does beef from different animals differ in composition, flavor, and digestibility, but that from various parts of the same animal varies. The flesh from the different parts of the carcass is divided into the following four classes, according to quality : —

Class I. Porterhouse, sirloin, and best cuts from the rump ; price per pound, 15 cents.

Class II. Round, shoulder, ribs, top ribs, flank steak, plate, and skirt, 12½ cents.

Class III. Best parts of neck, brisket, and flank, 8 cents.

Class IV. Poorer parts of neck, flank, and brisket, 7 cents.

Pieces of shank and bone are usually sold by the piece and not by the pound. The prices vary in different sections of the country and at different times, but the writer gives the above figures for the purpose of showing the difference in value of different parts from the same animal.

Veal. In many sections of the country, calves of all ages are slaughtered. In some cities, as in Boston,* the killing of a calf

* It is also forbidden in this state. — SEC.

under one month of age for food is prohibited. It would be well if this law, or a more extensive one, should be enforced all over the country. Veal is too often used simply as a dish to please the taste. As has been remarked, it is not nearly so nutritious as beef, and is much more difficult of digestion. Some persons are wholly unable to digest veal, and when they eat of it, it acts as a foreign body in the intestines and causes griping and diarrhea. Dr. Smith states that it is more easy of digestion when well roasted or broiled than when boiled. The time required for the digestion of veal is five hours or more, while beef is digested in from two and a half to three hours.

The mode of killing often practiced in this case has a special influence on the nutritive value of the food. Veal is bleached by repeatedly bleeding the animal for some days, and at last allowing it to bleed to death. The bones of calves contain much animal matter, and for this reason they are used for the production of gelatine; and calves' feet are selected for the preparation of jellies, which are often very acceptable to the sick.

Mutton. This is more easily digested than beef, though in a healthy man no marked difference would be observed, since in the stomach of such a man there arises no inconvenience from the digestion of beef. However, mutton will be found to tax the stomach of the dyspeptic less than beef does, and mutton broth is both acceptable and valuable to a person suffering from dysentery or kindred affections of the bowels. But mutton is not so nutritious as beef.

In dressing a mutton the woolly coat should not be allowed to touch the flesh. There is quite a perceptible difference in the flavor of mutton taken from a fattened wether, which has been for some time deprived of all excess in his woolly coat, and of that taken from a sheep which has a heavy fleece. The smallest proportion of both fat and bone to muscle is found in the leg; consequently this is the most valuable part of the animal.

Lamb. This is not nearly so nutritious as mutton. The tissue is soft, gelatinous, and rich in water. It is used principally on account of its delicacy of flavor, which, however, is very variable, depending upon the breed and nourishment. Lamb should not be selected for those whose digestive organs are weak.

Pork, Bacon, and Ham. As a rule, dried meats are more difficult of digestion than the same meats in the fresh state. Bacon and ham are, however, exceptions to this rule, for when well cured they are digested with more ease than fresh pork. In cold weather, nice bacon is especially suited for furnishing a large amount of heat by its oxidation in the body. The inhabitants of cold countries find fatty food necessary to their existence.

For several reasons, the flesh of the hog must continue to form one of the most important sources of our food. This animal can be fattened more readily and at less cost than either the ox or sheep. The best breeds of pigs store up in their bodies three times as much of the food which they eat as the ox does. Then the flesh can be cured easily and preserved indefinitely. Again, the animal multiplies rapidly and reaches maturity speedily.

On the other hand, of all the meats ordinarily eaten, this is most likely to be diseased. "Measly" pork can, as a rule, be recognized by the unaided eye on close inspection. The meat is dotted with grayish-white specks about the size of a pea; but "measly" pork is often cut up into sausage, in which the diseased condition escapes recognition. The "measles" (cysticerci), taken into the stomach of man, develop into tape worms. Then there are the trichinæ, which can be recognized only by the aid of the microscope. These little parasites penetrate the muscles of man, causing great suffering, which often terminates in death. These parasites occur so frequently in pork and its cured products, that every one should always remember that the flesh of the hog should not be eaten unless it has been thoroughly cooked. As we have stated, these parasites are destroyed if the temperature of every part of the meat be raised to 160° Fahr. during cooking.

Fowl. There is no bird that may not be eaten in case of necessity. In other words, the flesh of no bird is in itself poisonous. The same is true of the eggs of all birds. It is true that cases of poisoning from eating quails during spring have occurred; but the poisoning was due to the buds of the mountain laurel upon which the birds fed. The flesh of carnivorous birds is strong in odor and in taste, and would not form a tempting dish, save to one threatened with starvation. The light meats of birds are more easily digested, less rich in nitrogen and in flavor, than the

dark meats. Chicken broth is more nutritious than that made from either mutton or beef, and is often of great value to the sick.

Fish. Undoubtedly the flesh of some fish is poisonous. A fish is said to justify suspicion when it has attained a size unusual for one of its species. This popular idea may have a grain of truth in it. Fish should be discarded if the water in which it is being boiled blackens silver. The coloration is due to hydrogen sulphide (the gas of bad eggs), and indicates putrefactive changes. Decomposing fish has a pale look, and its belly is bluish. It is withered, sticky to the touch, and foul in odor. The seller sometimes tries to hide the evidence of decomposition by taking the eyeballs out and coloring the gills with blood. Fish caught from putrid water should not be eaten. Sometimes, near large manufacturing establishments where a great deal of refuse is thrown into the water, the fish are killed, and may be brought to market. The flesh of such fish is yellowish, soft, spongy, and of foul odor. Fish may be divided into those furnishing white and those furnishing red meats. Those of the former class, as the whitefish, are delicate and easy of digestion, while those of the second class are richer in nitrogen, and more stimulating. Fish should not be left in the water after they are dead, but should be packed in ice.

Fish should not be the chief flesh diet of a people, because it is not sufficiently stimulating. Indeed, it is doubtful if any class of people would voluntarily confine themselves to such food; but the occasional use of fish forms a change which is both agreeable and beneficial. There is no truth in the popular idea that a fish diet is especially suited to the development of the brain and nervous system.

Along with fish are often classed certain crustaceans, as the crab and lobster, and certain mollusks, as the oyster and mussel. The oyster and mussel are gelatinous, but are easily masticated and digested. The lobster, crayfish, and crab are more muscular, and are somewhat more difficult of mastication and digestion. The nutritive value of the oyster is not very great, but its delicacy of flavor and ease of digestion make it of great value to all, and especially to the sick. The raw oyster is probably more easily digested than the cooked.

The crab and lobster are of considerable nutritive value, though on account of price they are used principally as delicacies.

Sausage. The food value of sausage depends upon the substances out of which it is prepared. If made from good meat it forms a very valuable preparation, as by this means all the small bits are collected and saved. But its method of preparation allows of the introduction of poor grades of flesh, and of several adulterations.

The adulterations which have been found in sausage are meal, to increase the bulk and the profit; salicylic acid and borax, to prevent decomposition; and a red coloring matter (fuchsin), to give the poorer quality of meat a better color. The liver sausage (leberwürste of the Germans) is made by grinding up liver, lungs, kidney, tendon, soft cartilage, and fat; sometimes meal is added. The so-called white sausage, which is used to some extent in this country, is made by mixing the crumbs of white bread with the meat. Blood or red sausage consists of a mixture of blood, fat, and flesh, with or without meal. Pea sausage is a well-known preparation in France, where it is patented and warranted not to become rancid. It is of variable composition, but consists principally of ground pease with meat, and some preservative, as salicylic acid. The writer does not know of its introduction into this country.

Sausage poisoning, which is common and so often fatal in parts of Germany, is fortunately very rare in this country, though a similar affection from canned and dried meats is becoming too frequent. The poison is generated by partial decomposition. Sausage which has a putrid odor, or rancid taste, or has greenish or yellow spots in its interior, should not be eaten. Bad sausage and other similar meat preparations are usually, in the interior at least, soft and sticky, and when broken show small cavities. This is true even when the outside appears to be all right.

Meat Extracts. Liebig's meat extract, which is now so well known, is made by boiling lean meat with from eight to ten times its volume of water, removing the insoluble parts, fat and albumen, and evaporating to the consistency of a syrup. About thirty pounds of meat yield one pound of extract. Meat extracts are made on the largest scale in South America from cattle which are wholly worthless for beef.

It will be seen that this extract consists only of those constituents of the meat which are soluble in water, and they are certain crystallizable organic bodies and the inorganic salts. All the really nutritive parts of the meat are insoluble in water, and are not, therefore, present in the extract. Liebig's extract and similar preparations are agreeable in taste and odor, and are valuable stimulants, often improving the appetite, so that more valuable foods are demanded and digested. As stimulants, they are of great value to the sick; but some other food should also be supplied. A German deprived two dogs of all solid food, giving one only water and the other meat extract. The one furnished with the extract lost flesh more rapidly than the other, and died first.

Beef Tea. This should be prepared as follows: Cut the beef-steak into fine pieces. Put the chopped meat, *without any water*, into a small vessel, which is set into a kettle of warm water. Heat gradually, keeping the water in the kettle above blood-heat, but do not allow it to boil. Remove the small vessel containing the meat and the juice which has exuded from it, strain its contents, season, and serve.

As thus prepared, beef tea is somewhat more nutritious than Liebig's extract; still its chief value is to those who need a stimulant, and to those for whom a very small amount of food is sufficient.

Fluid Meats and Peptones. These are supposed to be formed by artificial digestion, whereby the same products are produced as in the stomach. The best of them are of value; others are worthless. They are to be regarded as medicines, and are to be used according to the directions of the physician.

Bone and Cartilage. Bone consists of a gelatine-forming organic substance, and of mineral salts. Besides, the marrow contains considerable fat and a little albumen. About one third of bone is organic matter, a large part of which is soluble in boiling water. For this reason bone is of value in making soups. The long bones are not acted upon by water readily, unless they first be cut or ground into small pieces. The bones of the spine and the ribs make a very nutritious soup, which yields as much as twenty-four per cent of the weight of the bone in solid matter.

Bones should be boiled for several hours in order to get all the food-stuffs out of them. When we remember that these soups are also used for the purpose of serving vegetables, we may appreciate the real value of bone as a source of food.

MILK.*

Milk is a white, yellowish white, or bluish white fluid. It consists of a colorless fluid holding milk globules in suspension. These globules render the fluid opaque.

The reaction of fresh milk (cow's) is sometimes alkaline, sometimes acid; but, as a rule, it gives both reactions, turning blue litmus paper red, and red litmus, blue.

Composition. Milk contains representatives of all the classes of food. The albuminous constituents are casein and albumen. The former is coagulated when the milk becomes sour, or on the addition of an acid, or by the action of rennet. The albumen is precipitated by heat. The amount of casein is much larger than that of albumen. There is also a nitrogenous constituent which is not coagulated by either heat or acids.

The fat of milk forms butter, and the importance of this constituent is so great that we often decide as to the value of a given sample of milk from the amount of butter which it yields.

Milk sugar has the same chemical composition as cane sugar, but they differ somewhat in their physical properties.

If some milk be evaporated to dryness and the residue be burned, there remains a flaky, white ash, which contains all the inorganic salts which are absolutely necessary to the body.

The following table gives the average per cent composition of milk:—

Water.	Casein and Albumen.	Fat.	Milk Sugar.	Ash.
87.5	3.5	3.5	4.8	0.7

Colostrum. The fluid which the cow yields directly after calving is known as colostrum, which differs essentially in composition from milk, and is unfit for human food. It gradually, however, approximates milk, and the change may be regarded as

* As cow's milk is the only kind that is used as a commercial food in this country, all the statements made will refer to this kind unless some other kind be specified.

complete by the eighth or tenth day. The fat of colostrum is in large lumps, and it contains much more albumen than milk does. Its average composition is shown by the following figures : —

Water.	Albumen and Casein.	Fat.	Milk Sugar.	Ash.
73.07	19.21	3.54	3.00	1.18

The Care of Milk. Milk should not be allowed to stand in copper, brass, or zinc vessels, nor in earthen vessels which are lined with lead glazing ; for if the milk should become at all sour traces of the metal may be dissolved in it. There is no objection to wooden vessels if they are kept scrupulously clean ; but when emptied, they should be scalded with boiling water, and then dried before they are refilled. There are also no objections to the best glazed earthen or to well tinned vessels.

Milk should not be allowed to stand uncovered in an occupied room, especially in a sitting-room or bedroom. The fluid rapidly absorbs gases, which may set up putrefactive changes in it. Besides, the dust which falls into it may contain disease germs, and these, finding a suitable place for their development, may multiply rapidly. There can be no question that milk has often served as the vehicle for distributing the germs of scarlet fever and diphtheria, which have fallen into it, or have been introduced with the water which has been used in diluting the milk, or for washing the vessels in which it is carried.

Souring of Milk. This fluid, on standing, sooner or later becomes distinctly sour, and its casein is coagulated. This is due to the action of a ferment, which is always present in the milk, on the milk sugar, which is converted into lactic acid. The coagulated casein is known as “clabber,” and the fluid portion forms whey. The best method of retarding the souring process in milk consists in keeping it in a cool place. Boiling has a similar effect but it alters the nature of the fluid more or less. Milkmen sometimes add bicarbonate of soda to milk to prevent its souring. The alkali simply neutralizes the acid as fast as it is formed.

Adulterations. While a great deal that is sensational has been said about the adulterations of milk, these frauds are perpetrated too frequently. A food which forms the principal, and in many

instances the sole, sustenance of children, should be kept free from any adulteration which in any way lessens its nutritive value. To furnish a child with watered milk is often to slowly starve it to death, and the person guilty of such an act should be treated as a criminal.

The adulterations practiced in the sale of milk are as follows: —

1. The addition of water ;
2. The removal of more or less of the cream ;
3. The addition of some foreign solid substance to increase the opacity or density of the fluid.

The addition of water is the fraud most commonly practiced. The amount added varies from ten to fifty per cent of the milk, though the former figure is probably the one most frequently approximated. Several states have laws defining the amount of milk solids which must be present. Wherever these laws are enforced they form a valuable protection to the consumer, and to honest dairymen as well. Unfortunately, there is no ready test capable of being used by any one, by which the exact amount of water can be determined. The amount of cream which forms on a given volume of milk standing in a tall glass tube or other vessel is a rough but valuable method which every housewife may employ. From this she cannot say with certainty to her milkman that he has watered his milk, but she can tell him that the milk is not as rich as it should be.

However, it must be remembered that the cream rises on milk much quicker under some conditions than under others. Watery milk may be produced by feeding cows upon sloppy food, such as the refuse from breweries, as well as by the direct addition of water. Besides, watery milk often has a bluish color, and is not as opaque as healthy milk ; though this appearance is sometimes hidden by the addition of a yellow coloring substance, annatto.

Skimmed milk is frequently sold for whole milk. In certain states there are very excellent laws against such a practice. The same rough test may be made as given above for watered milk. Sometimes skimmed milk is added to an unskimmed portion, and then sold as whole milk.

The addition of foreign solids is not frequently resorted to. The most common substance used is bicarbonate of soda for the purpose of preventing the souring of the milk, as has already been

stated. In the amount used it does not affect the food value of the milk. It is frequently said that chalk, gypsum, and gum arabic are added to milk. They may be used occasionally, but stupid indeed must be the consumer who would not detect these substances, which, on account of their insolubility, would be deposited in the vessel. It has also been stated that the brains of calves and other animals are pulverized or ground fine, and placed in milk. This is an adulteration found in sensational books, but not in milk.

Diseased Milk. There can be no question about the possibility of the transmission of certain diseases from the lower animal to man through the use of milk as a food. In inflammation of the udder, the secretion of the gland is diminished, and the act of milking causes the animal much pain. The milk is of unpleasant odor, and contains lumps of coagulated casein and albumen, and sometimes blood and pus. Such milk may cause irritation and even inflammation of the stomach in children. In all acute febrile diseases of cows the amount of the secretion is diminished, and in severe fevers the flow of milk ceases altogether. In chronic diseases, as those of the digestive organs, the milk becomes thin and watery.

The cause of the disease known as milk-sickness, which has prevailed in certain parts of Illinois, Indiana, Kentucky, Tennessee, Georgia, and some other states, has never been ascertained. Some ascribe it to plants which the cows eat; others are equally certain that the drinking water is the source. As the country becomes more improved, the disease appears less frequently. This would lead us to suppose that the poison is obtained from some native plant which is destroyed by cultivation of the soil.

Unfortunately, in many diseases of cows, during the first stages at least, the changes in the character of the milk are not sufficiently marked to be observed; however, the following kinds of milk should be avoided:—

1. Milk which becomes sour and curdles within a few hours after it has been drawn, and before any cream forms on its surface. This is known in some sections as “curdly” milk, and it comes from cows with certain inflammatory affections of the

udder, or with digestive diseases, or from those which have been overdriven or worried.

2. "Bitter-sweet milk" is that whose cream has a bitter taste, is covered with "blisters," and frequently with a fine mold. Butter and cheese made from such milk cannot be eaten on account of the disagreeable taste.

3. "Slimy milk" can be drawn out into fine ropy fibers. It has an unpleasant taste, which is most marked in the cream. The causes which lead to the secretion of this milk are not known.

4. "Blue milk" is characterized by the appearance on its surface, eighteen or twenty hours after it is drawn, of small indigo-blue spots, which rapidly enlarge until the whole surface is covered with a blue film. If the milk be allowed to stand for a few days, the blue is converted into a greenish or reddish color. This coloration of the milk is due to the growth of a microscopic organism. The butter made from "blue milk" is dirty white in color, gelatinous in consistency, and bitter in taste.

5. "Barnyard milk" is a term used to designate milk taken from unclean animals, or those which have been kept in filthy, unventilated stables. The milk absorbs and carries the odors, which are often plainly perceptible. Such milk may not be poisonous, but it is repulsive.

The Value of Milk as a Food. The importance of this article of diet can hardly be overestimated. For children, it is the mainstay. For adults, it is a substance palatable and easily digested. About two quarts of good rich milk per day will support life, even if no other food be taken. One sick with a wasting disease, such as typhoid fever, has his chances of recovery greatly increased if he takes milk with comfort and digests it with ease. For the infant, there is no other food which can fully supplant the milk of the mother. Physicians of large experience say that the chances of rearing a babe are 50 per cent better when it is well supplied with healthy milk by its mother than when nourished by artificial preparations. Woman's milk contains less fat and casein, and more sugar than the cow's milk. When it becomes absolutely necessary to substitute the latter for the former, the cow's milk should be diluted with one third its volume of warm water, and one half ounce of milk sugar should be added

to each pint. As the child grows older, the amount of water added should be diminished, until, at the age of six months, undiluted cow's milk may be used.

Condensed Milk. This is prepared by evaporating milk in a vacuum to one fifth its volume, or to the consistency of honey, placing it in cans, which are set in water, the temperature of which is raised to the boiling point when the cans are sealed. Sometimes cane sugar is added after evaporation. When used, condensed milk is diluted with five times its volume of warm water. It forms a valuable substitute for fresh milk when the latter cannot be obtained. Its exact value will depend upon the quality of the milk used in its preparation. The three most prominent brands of this preparation used in this country are the Anchor, the Swiss, and the Anglo-Swiss. The writer has examined these and found them all of good quality.

BUTTER.

Of all the fats, butter is the most palatable and most easily digested. Only when it is rancid does it lead to dyspepsia. It, like all other fats, should be taken in a finely divided state. Its food value is great, and the amount consumed per head daily is about one ounce.

Physical Properties. Good butter is of a pale yellow color, which is uniformly diffused through it. The exact color of butter varies with the food of the cow; but as a yellow butter is universally demanded in market, makers almost invariably use a preparation of annatto. This artificial coloration has been so long practiced, and as the use of the coloring material is not detrimental to health, it may be regarded as a legitimate use. Good butter is free from rancid taste and odor. White lumps in butter are due to the coagulation of casein, from the milk becoming too acid, and its incorporation with the cream. When a watery fluid exudes from the freshly cut surface of butter, it is evidence that the buttermilk was not expressed as thoroughly as it should have been, or that water has been added for the purpose of increasing the weight.

Composition. The amount of water in butter will depend upon the manner of preparation and the quantity of salt added. In

some families, an unsalted butter is used. This does not contain more than from 3 to 6 per cent of water. But as a rule, more or less salt is added in making the butter. This is done to insure the preservation of the fat, and most people consider such an addition an improvement to the taste. Good salted butter will not contain more than from 10 to 15 per cent of water, while the poorer grades may contain as much as 28 per cent. This large amount is taken up only when boiling water is mixed with the fat, and then the whole allowed to cool.

The salt used in butter should be finely pulverized and thoroughly mixed with the fat. From 3 to 5 per cent of salt is all that is needed for preservation, but in order to increase the weight, from 10 to 15 per cent is sometimes added. Good butter contains from 85 to 90 per cent of fat, and any which contains less than 82 per cent may be considered as adulterated. The most common fraud in regard to the fat consists in the use of tallow and lard, which will be discussed under the heads of oleomargarine and butterine.

The greatest amount of casein permissible in butter is 2 per cent. If there be much more present the butter is lumpy. There is now being sold to dairymen a recipe by which it is guaranteed that a given volume of milk will be made to yield 25 per cent more of butter. The process consists in the coagulation of all the casein in the milk, and its incorporation with the fat. The product is really not butter at all, but an inferior soft cheese. An excess of casein in butter increases its liability to become rancid.

How to Take Care of Butter. Butter, like milk, takes up unpleasant odors; for this reason it should not be allowed to stand exposed to the air of occupied rooms, nor in other places that may become foul. When freely exposed to air, butter becomes rancid: it should be tightly packed and covered. Warmth hastens rancidity: it should be kept in a cool place.

OLEOMARGARINE AND BUTTERINE.

Oleomargarine. This substance is now largely manufactured and sold in this country, generally under the name of butter, but sometimes under its proper name. It is made as follows: The best beef fat is cut from the carcass while it is still warm. All

bloody portions and those tainted in any other way are rejected. The selected fat is placed in fresh cold water, in which it is both cooled and washed. It is then ground like sausage. Then it is heated from 160° to 180° Fahr., by which the oil is separated from the membranes. The oil, after being salted, is cooled, and then pressed. Then it is placed in milk, a preparation of annatto added, and the whole churned, when it is worked as butter. The temperature at which the oil is separated from the membrane should be as low as possible ; but in practice it varies within large limits. Some manufacturers use a heat of only 120° , while others allow the temperature to run up to 200° Fahr. The oil thus prepared is known to the trade as "butter oil."

Butterine. This is prepared by the mixture of "butter oil" obtained from beef fat, as in making oleomargarine, and a similar oil obtained from hog fat, and churning with milk. The oil from the lard is separated at a temperature not exceeding 120° Fahr.

A great deal has been said against the use of these preparations as foods. Several states have laws which require that when such articles are sold, the buyer shall receive them from a vessel which is labeled with the word Oleomargarine or Butterine, as the case may be, in letters one inch high, and the portion taken by the buyer shall be covered with a paper which also bears the true name of the fat. This law is certainly a just one, as every article of food should be sold under its proper name ; and the price of good butter should not be demanded for these imitations. At least two states — New York and Michigan — have enactments which wholly forbid the manufacture and sale of these preparations. These laws are both unwise and unjust. Oleomargarine and butterine are valuable food-stuffs. They are not equal to the best grades of butter, but are far superior to the poor, partly rancid butter which is so generally sold in the large cities. As has been seen from the methods of preparation given above, only the very best pieces of fat can be used. Any fat which has an unpleasant odor, or is in the least degree foul, must be rejected, for there is no method known for removing the odor.

One of the greatest dietary needs of the workingman is a sufficient supply of an inexpensive, wholesome fat. This will be largely met by these artificial butters.

CHEESE.

Cheese is of considerable nutritive value, one pound containing as much nitrogen as two pounds of meat, and as much fat as three pounds of meat ; but, as a rule, cheese is difficult of digestion, and can be taken only in small amount at a time. Moreover, the exact composition of cheese is quite variable. It is made both from whole and skimmed milk, and at present some is made from skimmed milk to which oleomargarine or butterine has been added. The dairyman skims his milk, making butter from the cream ; then to the skimmed milk he adds the fatty preparation and makes cheese. In this way the same milk is made to produce both butter and cheese. It is a popular idea, that while cheese itself is digested with difficulty, a small amount of it in the stomach aids the digestion of other substances. The experiments of Dr. Edward Smith have confirmed this belief. As digestion is partly due to fermentation, and since cheese contains certain ferments, the belief is not irrational ; but when taken as an aid to digestion, the amount should be very small, not more than from one half to one ounce.

True cream cheese is made from whole milk, to which cream has been added ; but what is ordinarily known as " cream cheese " is that made from unskimmed milk. In such a cheese the proportional amounts of casein and fat are substantially the same as in good milk. Skimmed milk cheese is not so nutritious and not so easy of digestion as that made from whole milk.

Cheese is almost universally colored with annatto, which, as it has been so long used and is not detrimental to health, may be regarded as a justifiable adulteration. Without it cheese would be of a dingy white color.

EGGS.

There is no bird whose eggs may not be eaten in case of necessity. However, the eggs of flesh-eating birds are of strong, unpleasant odor. Practically, our use of eggs as food is confined to those of the chicken, duck, Guinea hen, and goose. The exact taste of eggs is influenced largely by the food of the bird. The nutritive value of eggs is great, both on account of their chemi-

cal composition and their flavor. The average weight of hens' eggs is from $1\frac{1}{2}$ to 2 ounces, the parts existing in the following proportions : —

Shell	11.5 per cent.
Albumen (white)	58.5 “
Yolk	30.0 “

The white of the egg consists of water and albumen, with traces of inorganic salts and fat. The yolk contains from 30 to 32 per cent of fat; so that, practically speaking, the fat is confined to the yolk. There is not much difference in the time required for the digestion of a raw egg and one which has its albumen coagulated by heat, but the latter is the more agreeable in flavor. A hard-boiled egg is digested with more difficulty than one rarely done.

Since eggs are most abundant and consequently cheapest during spring and summer, their preservation is of considerable importance. When left exposed to the air, germs pass through the shell and cause decomposition. Consequently, the object to be held in view in endeavoring to preserve them is to exclude the air. This may be done by placing them in lime-water; but in this way the shells are made very brittle, and many are broken in removing them. They may be dipped in mucilage and then packed in salt. However, the most common method consists simply in packing them in salt alone, or in salt and lime. Some dip the eggs for a moment in boiling water, whereby the part of the white immediately in contact with the shell is coagulated.

Decomposed eggs will float in brine (made by dissolving one part salt in ten parts of water), while fresh eggs placed in the same solution will sink.

VEGETABLE FOODS.

CEREALS AND GRAINS.

The cereals used as food in this country are wheat, rye, oats, corn, and rice. The most important food constituents of the grains are starch, proteids or nitrogenous substances, and the

phosphates of the ash. They also contain small amounts of fat, sugar, gum, and mineral substances other than the phosphates.

Of all the grains, wheat is considered the most nutritious. Its exact composition varies slightly, according to climate, nature of the soil, and the fertilization employed. Its average per cent composition is given in the following figures : —

Water.	Proteids.	Fat.	Sugar.	Starch.	Cellulose.	Ash.
13.56	12.42	1.70	1.44	64.07	2.66	1.79

The nitrogenous substances consist of vegetable albumen, casein, and gluten. The last mentioned forms by far the greater part of the nitrogenous material. The ash may contain as much as 45 per cent of phosphoric acid, which is combined with lime, magnesia, and potash. As a rule, the greater the amount of phosphoric acid in the ash of the wheat, the greater the amount of nitrogenous matter in the grain.

Rye does not differ greatly in its composition from wheat, as is shown by the following figures, which give the average of forty-four analyses collected by König : —

Water.	Proteids.	Fat.	Sugar.	Gum.	Starch.	Cellulose.	Ash.
15.26	11.43	1.71	0.95	4.88	61.99	2.01	1.77

However, the gluten of wheat is superior in quality to that of rye. In those countries whose inhabitants are compelled to depend largely upon rye bread, there is much suffering at times from poisoning with ergot. Fortunately, this poison is not found to any extent in wheat.

Oatmeal, which has been used as a food in Scotland for a long time, is now being largely consumed in the United States, and it is to be hoped that its use will become more universal. It is a highly nutritious, healthy, and cheap article of diet. The average composition of the grain is as follows : —

Water.	Proteids.	Fat.	Sugar.	Gum.	Starch.	Cellulose.	Ash.
12.37	10.41	5.23	1.91	1.79	54.08	11.19	3.02

It will be noticed that the amount of fat is much larger than in wheat or rye. In the best specimens of the grain the fat may be as much as 8 per cent.

Corn is largely used in some of the southern states, and, in the various ways in which the people know so well how to prepare it, it forms a most valuable food. The exact composition varies considerably with the variety of the plant and the soil on which it grows, but the following are the average figures : —

Water.	Proteids.	Fat.	Sugar.	Gum.	Starch.	Cellulose.	Ash.
13.12	9.85	4.62	2.46	3.38	62.57	2.49	1.51

The greater part of the nitrogenous material consists of vegetable fibrine.

Rice grains have the following average composition : —

Water.	Proteids.	Fat.	Starch.	Gum.	Cellulose.	Ash.
9.55	5.87	1.84	73.00	2.85	5.80	1.09

Since the per cents of both proteids and fats are low, it must be regarded as the least nutritious of the grains here mentioned. However, its ease of digestion renders it valuable to the sick, and the fact that its heat-producing power is not so great as the other grains, adapts it to the inhabitants of warm countries.

Barley, which is so largely used by the Scandinavians, and millet, which is a staple food in India and some other warm countries, are so seldom used in this country as foods that an extended notice of them is unnecessary.

Buckwheat does not belong to the cereals, but to a wholly different class. However, as it is a food which is highly prized by many, it deserves mention. The plant soon reaches maturity, and may be grown upon poor, sandy soil, as well as upon richer ground. The average composition is shown by the following figures : —

Water.	Proteids.	Fat.	Gum.	Starch.	Cellulose.	Ash.
12.63	10.19	1.28	2.85	69.30	1.51	2.24

The albuminous substances found in buckwheat differ materially from those present in the cereals. Its food value is not so great as that of wheat, rye, or oats.

FLOUR AND MEAL.

By grinding, the grains which have been described are converted into flour or meal. By this process the food material is

better fitted for cooking, and is to some extent separated from the indigestible portions. A few simple rules will be given by which good flour or meal may be distinguished from the inferior grades:—

1. Good wheat flour is white, with only a faint yellow tint. It does not contain any bluish, grayish, or dark specks. It feels soft and dry to the finger, and when some is pressed in the closed hand it forms a dry lump, which breaks down readily with the gentlest pressure. If it fails to form a lump when pressed in the hand, it contains too much bran, or some mineral adulteration has been added. When the finger is introduced vertically into good flour, the depression thus made remains; otherwise, there is too much bran present. The odor is fresh and pleasant, not musty. Neither with the unaided eye nor with a magnifying glass will any living bodies be found in good flour.

2. Rye flour has a grayish tint, and a characteristic odor and taste. The other general properties are identical with those of wheat flour.

3. The color of corn meal varies with the variety of corn from which it is prepared. It should feel perfectly dry and powdery. It does not “lump” when pressed in the hand, and it has a characteristic, pleasant odor. Corn meal, when decomposition has begun, has a rancid odor, and if some of it be placed upon a piece of moistened blue litmus paper (which can be obtained at any drug store), the color of the paper will be changed to red. Good meal has no effect on the color of litmus paper.

4. Oatmeal should be dry and free from any disagreeable odor.

The Care of Meal and Flour. When exposed to the air, flour and meal absorb water, and this greatly increases their tendency to decompose. In moist flour the lower forms of life are likely to develop. For these reasons these preparations should be kept in well closed receptacles.

Adulteration. Fortunately, these foods are very rarely adulterated in this country. Since wires have been used so extensively for binding in the great wheat fields of the northwest, a small amount of iron is found in flour, as an accidental adulteration. It is frequently stated that gypsum and other mineral substances are added to flour, but the writer has examined many hundred

samples, and has never detected such an adulteration. It has also been stated that the so-called "patent flour" contains alum. This is certainly false. One of the writer's students examined twenty-three samples of "patent flour" obtained at different places and failed to find any alum present. It may be possible that in some instances the cheaper flours or meals are added to wheat flour; but even this fraud, if practiced at all in this country, is carried on to a very limited extent. The great abundance and low price of wheat would tend to make any adulteration profitless.

BREAD.

The cooking of his food is one of the earliest evidences of man's civilization, and with no other food has the process of cooking been so thoroughly developed as with the products obtained from the edible grains. The essential constituents of bread are flour, water, and salt. To these have been added, for the purpose of varying and improving the taste, one or more of the following substances: Milk, sugar, eggs, fats, ethereal oils, and fruits. Civilized man in every part of the world employs some means of raising or leavening his bread. By this, the taste is improved, and the crumb, being divided by the evolved gas, is more readily acted upon by the digestive juices. The methods of raising bread are as follows: —

1. *By the Growth of Yeast.* Yeast consists of microscopic vegetable organisms, which, when placed in a suitable medium, grow rapidly, producing alcohol and carbonic acid gas. The evolved gas, in attempting to rise, becomes entangled in the meshes of the dough, distending it and making it light. After the dough has risen sufficiently, it is placed in a hot oven to bake. The heat destroys the yeast plant, and thus prevents further fermentation. If the growth of the yeast be allowed to continue for too long a time, acetic, lactic, and butyric acids are formed, and such dough makes "sour bread."

2. *By Baking Powders.* In the use of baking powders, the carbonic acid gas, necessary to render the dough light, is generated by chemical means. Baking powders consist of some alkaline carbonate, as sodium bicarbonate, and some acid substance, such as the acid tartrate of potash (cream of tartar), together with

a small amount of starch to keep the mixture dry. As long as the powder is perfectly dry, no reaction occurs; but when it is dissolved in water in the dough, the acid acts upon the carbonate, liberating carbonic acid, which has the same effect in raising the dough as when it is produced by the growth of the yeast plant.

In baking powders, ammonium carbonate is sometimes used instead of sodium bicarbonate, and the acid tartrate may be replaced by the acid phosphate of lime. But the use of alum in baking powders is an adulteration which is injurious to health. It unites with the phosphates in the bread, rendering them insoluble, and preventing their digestion and absorption. In this way alum, when present, diminishes the nutritive value of bread.

A small amount of starch in baking powders is necessary to keep them dry, but too often the manufacturer adds as much starch as possible, and this should be considered as an adulteration.

3. *By Aeration.* In some large bakeries, carbonic acid gas, generated by the action of some acid on carbonate of lime, is forced under pressure into the dough, thus distending the mass; or the dough is kneaded with water which has been saturated with carbonic acid under pressure. When the gas is washed before being forced into the dough or water, this method is a very desirable one; but the cost and care of the special apparatus necessary will prevent the adoption of this method of raising bread, except in large bakeries and hotels.

General Properties of Good Bread. The general statements concerning bread refer to that made from wheat flour. Good bread has a thick, fragile crust, which is not burnt, and which forms from 25 to 30 per cent of the weight of the loaf. The crumb is white and filled with cavities, the partitions between which are easily broken down. These cavities should be distributed through every part of the crumb; otherwise the bread is sodden and heavy, and decomposes quickly. The bread should be of a pleasant odor and taste. If the bread is acid, it was probably made from inferior flour.

Changes on Standing. On standing, bread gradually loses weight by the evaporation of a part of its contained water, and becomes hard. The amount of water given off in a certain time

will depend upon the size of the loaf and the nature and extent of the crust. Bread should not lose more than 3 per cent of its original weight after four days. Stale bread, when dipped in water and rebaked, or when steamed, becomes palatable, but never completely regains the properties of fresh bread. In stale bread, small living organisms are likely to develop. Some of them are poisonous. The white and orange-yellow molds which form on stale bread are due to a poisonous growth. Sometimes blood-red spots appear in bread. These also are due to a microscopic growth.

Adulterations of Bread. Bread is not adulterated to any great extent in this country. The baker's loaf is usually of light weight. An excess of water is often incorporated with the dough. This makes the bread sodden and heavy, and increases its liability to decompose. In some of the larger cities mashed potato has been found worked into bread. This lowers the nutritive value of the article greatly. Alum is sometimes added directly to flour or dough, and is sometimes contained in the baking powder, as has been stated.

The Food Value of Bread. As has been remarked, the most important food constituents of the grains, and consequently of bread, are the proteids, starches, and ash. The amount of nitrogenous matter is too small for a perfect food, and for this reason bread is often taken with some other food richer in nitrogen, such as meat. Bread is also deficient in fat, and man instinctively takes some kind of fat, such as butter or bacon, along with his bread. Notwithstanding these imperfections, bread is a food of which we never tire, and the various ways in which it is prepared aid in sharpening the appetite. Besides, while some important food substances are not abundant in bread, all are present to a greater or less extent; and with the addition of a little more nitrogen in the shape of meat and fat, as butter or bacon, a perfect diet is secured.

PEASE AND BEANS.

Pease and beans belong to the leguminous seeds. They contain more nitrogenous matter or proteids than any other vegetable food. Not only is the amount of proteid greater than in wheat

and other grains, but it is different in its properties. That of the grains is principally gluten, while that of pease and beans belong to the casein group. The former is more easily digested than the latter, pease and beans often causing disturbances in the stomach and bowels. The average composition of these foods is shown by the following figures : —

PEASE.

Water.	Proteids.	Fat.	Starch.	Cellulose.	Ash.
14.99	24.04	1.61	49.01	7.09	3.26

BEANS.

Water.	Proteids.	Fat.	Starch.	Cellulose.	Ash.
14.76	24.27	1.61	49.01	7.09	3.26

There is great difference between the digestibility in these substances in the green and in the dried state. Soft green pease tax the stomach but slightly. Dried pease and beans must be boiled slowly and for a long time ; and if they are very old, they should be soaked for several hours, and then crushed before they are cooked. Hard water is to be avoided in cooking them, as the lime of the water forms an insoluble compound with the albuminous constituents of the seeds.

Ground pease and beans are used to some extent in this country. They form a part of some food preparations, such as pea-sausage (erbswürste of the Germans).

Food Value of Pease and Beans. The nutritive value of the seeds is considerable, but on account of the tax which they impose upon the digestive organs, they cannot be taken in large quantities. The deficiency of fat is usually supplied by serving these foods with bacon or other fatty food.

POTATOES.

Potatoes contain only about 25 per cent of solids, four and five tenths of which is starch. The per cent of nitrogenous matter and fat is small, as shown by the following figures which give the average per cent composition of potatoes : —

Water.	Proteids.	Fat.	Starch.	Cellulose.	Ash.
75.77	1.79	0.16	20.56	0.75	0.97

Notwithstanding its comparatively small per cent of solids, the potato will continue to be one of the most valuable foods. Its growth is not influenced by soil and climate to such an extent as that of the cereals. The yield of the potato per acre is greater than that of any other vegetable. It is preserved with ease for winter's use, and the raw material is fitted for the table with but little trouble and expense. It can be served in a great variety of ways, and with other foods. Its deficiency in nitrogenous matter and fat is made up by cooking it with meat. It is agreeable to the taste, and easy of digestion. New potatoes are said to be waxy, and not so easily digested as old, mealy ones. In order to retain the salts, potatoes should be cooked with their skins on. If boiled, they should at once be placed in hot water. If baked, the oven must be moderately hot.

Potatoes should be of fair size, firm, and free from mold. The sweet potato is similar in composition to the ordinary potato, and furnishes an agreeable substitute ; but it is more expensive and cannot be preserved so easily.

OTHER VEGETABLES.

The other succulent vegetables which are used as foods are principally useful on account of furnishing variety, and for the acid salts which they contain, and whose use renders other foods more digestible and prevents scurvy and kindred affections.

The beet root is not only a pleasant food, but furnishes as much as 10 per cent of sugar, for which it is now largely grown ; though the different varieties of the root vary considerably in the amount of sugar which they contain.

Turnips, carrots, and parsnips contain from 82 to 90 per cent of water, from 5 to 10 per cent of starch, from 2 to 6 per cent of sugar, about 1 per cent each of nitrogenous matter and salts, and $\frac{1}{2}$ per cent or less of fat.

Cabbage, turnip tops, spinach, water-cresses, dandelion, and other "greens" should always be thoroughly cooked. The amount of absorbable food which they contain is generally less than 5 per cent.

The tomato, either raw or cooked, furnishes an agreeable sauce. It is also used for making soup, and for flavoring meat

soups. It contains over 92 per cent of water, less than 2 per cent of starch, and about $2\frac{1}{2}$ per cent of sugar.

Rhubarb is a pleasant, acid vegetable, which is especially serviceable on account of its being one of the earliest of spring plants.

Pumpkins and squash contain from 1 to 5 per cent of starch, about 1 per cent of sugar, and less than 1 per cent each of nitrogenous matter, fat, and ash.

Thoroughly ripe melons are beneficial in season, on account of their action upon the kidneys. They should never be eaten, however, unless they are thoroughly ripe and of good quality.

STARCHES.

The food value of the starches is small, but they are easy of digestion, and are serviceable in preparing dishes for the sick. When mixed with nitrogenous and fatty substances they are largely used in making puddings. In this way, stale bread and other remnants from the table may be converted into palatable dishes.

Sago and arrow-root are obtained from various palms. The former appears in small granular masses, which, when dry, are so hard that they can hardly be crushed by the teeth; but they readily absorb water and soften.

Arrow-root, when pure, is found in perfectly white lumps, which may readily be crushed between the fingers. When boiled with water and constantly stirred, no foam should form on the surface. The presence of a foam indicates that the arrow-root has been adulterated with flour.

Tapioca, obtained from various tropical plants, and corn and potato starches are also used in puddings.

SUGARS.

Sugar is a name now given to a class of substances which vary among themselves to some extent both in physical and chemical properties, though ordinarily the term "sugar" is supposed to refer to that obtained from the sugar cane and sugar beet. Practically there are now in trade three kinds of sugar, — cane sugar (obtained from the cane and beet), glucose or grape sugar (ob-

tained by the action of dilute acids on starch), and "mixed sugars," or "new process sugars" (consisting of cane and grape sugar mixed in various proportions). Cane sugar is here referred to, unless some other is specifically mentioned.

Sugar is used for modifying the taste of other foods, and for the manufacture of confectionery and syrups. By improving the taste, sugar, when added in proper amounts, aids the digestion of other substances, and furnishes a certain amount of nutriment in itself.

Good, crystalline, white sugar contains less than one half of 1 per cent of water, and not more than this amount of ash. Yellow sugar may contain as much as 2 per cent of water.

Grape sugar may contain from 10 to 25 per cent of water, and from $\frac{1}{2}$ to 2 per cent of ash.

Much has been said about the adulteration of sugar with glucose. That this has been practiced to a considerable extent is shown by numerous analyses. Indeed, "mixed sugars" are sold by wholesale dealers, and too frequently the retail grocery-man sells these to his customers as straight cane sugars.

Experts can recognize these sugars by the way they "handle." "They are apt to cake and harden, and stick to the scoop and sides of the barrel. In the white, granulated sugars, the mixture of the white lumps of glucose with the crystalline cane sugar can be readily seen; but in the brown sugars it is difficult to detect the fraud by the appearance of the sugar. When a mixed sugar is shaken with cold water, the white lumps of the glucose will remain undissolved for some time after all the cane sugar has passed into solution."

Glucose, when made with care — and it must be so made when it is used to adulterate sugar — is not harmful to health. The fraud is a pecuniary one, as glucose costs usually less than two cents per pound, but when mixed with sugar, it is sold for six cents and more per pound. The sweetening properties of glucose are not so great as those of cane sugar, and consequently, in the preparation of foods, much more of the mixed sugar is required than would be necessary with cane sugar.

Confectionery. The various candies are made from sugar, or sugar and starch, with or without coloring matters. Twenty-

seven samples were examined under the writer's direction, in order to ascertain whether or not they contained any poisonous substance. One sample consisted wholly of starch, terra alba, and an aniline color, without any sugar. The use of terra alba (white earth or clay) in any considerable amount would be harmful on account of its indigestibility. Only two samples contained ultra marine as a coloring agent. This would also be harmful, if used in large quantity. The other samples were all free from any suspicious ingredient. The coloring agent most frequently used is aniline. Grape sugar is extensively employed in the manufacture of confectionery.

Honey. This is frequently adulterated with glucose, which may be added directly to strained honey, or may be fed to the bees, and by them deposited in the comb. Unadulterated honey varies in flavor according to the plant from which it is gathered. White clover and buckwheat honeys are much prized in this country. The fact that honey sometimes produces unpleasant symptoms is probably due to bees feeding upon poisonous flowers, though the susceptibility of the individual partaking of it probably plays an important part. Pollen grains are often mixed with honey, and the unpleasant effects upon the system may be, in part at least, due to these.

Molasses and Syrups. These are solutions of sugar, and they are now frequently made by a mixture of cane syrup and glucose. Indeed, many prefer a syrup containing glucose. It is not so sweet as a pure cane sugar molasses. However, the former should be much cheaper than the latter. As in the case of sugar, the fraud here practiced is a pecuniary one rather than one detrimental to health.

FRUITS.

Fruits abound in tropical and temperate climates, and furnish a great variety of flavors, which are useful in themselves and for the purpose of rendering other foods more enjoyable. The real food value of fruits, judged by their chemical composition, is small, but when thoroughly ripe and well preserved, they act beneficially upon the system, improving the appetite, and maintaining a healthy condition of the various vital organs. Probably

no fruit is necessary to life, and fruits may be regarded as luxuries ; but man's instinct and cravings prompt him to obtain them often, even when their cost is considerable. Undoubtedly they are most highly prized by the inhabitants of warm countries, where foods that produce but little heat are most desirable. The most enjoyable part of fruits is their juice, which consists principally of watery solutions of sugar and acids. The amount of sugar in fruits varies from 1 to 18 per cent. The cellular parts are not easily digested, and those fruits are prized most highly which have the greatest quantity of juice with the smallest proportion of cell structure.

The majority of fruits may be eaten either raw or cooked, and those which cannot be preserved in their natural condition may be dried. Therefore, in one or the other form they may be enjoyed at any season of the year, and may be served with other foods.

The volatile ethers, upon which the flavor of many fruits depends, have been made artificially by the chemist, and, under the name of essences, are largely used in cooking.

It is wholly unnecessary even to mention the various fruits in use, as all are sufficiently acquainted with their general properties and composition. Suffice it to say, that thoroughly ripe fruit, taken in moderation, can have no deleterious effect upon the system. However, care should be exercised in using fruits imported from countries in which an infectious disease, such as cholera, prevails. Such fruit should at least be thoroughly washed, or stripped of its covering, and, if suitable for such purpose, should be cooked.

Canned Fruits. In buying canned fruits, it should be observed that the ends of the cans are concave. If convex, there has probably been some decomposition of the contents with the evolution of gas. Cases of severe poisoning have followed the eating of partially decomposed* canned fruits. Moreover, if the cans appear old and battered, thus giving evidence of having been used twice or oftener for the purpose of preserving fruit, they should be rejected, since the contents of such cans are liable to contain small amounts of tin or other metal, which may prove poisonous. Much having been said about the use of salicylic

acid in canned fruits as a preservative agent, the writer requested one of his students to examine samples from all the more prominent firms engaged in the preparation of canned foods, for this adulteration. In no case was the acid found. Frequently, agents pass through the country offering to sell preparations or recipes for the sure preservation of fruit. The active ingredient of all these formulas is salicylic acid or some form of sulphurous acid. The use of such preservatives is unnecessary. Moreover, they injure the taste of the fruit, and are liable to prove deleterious to the health of the consumer.

Prof. Sharpless states that "apple sauce" is frequently pumpkin boiled with cider; that the raspberry jam offered for sale is often sour; and that strawberry jam is frequently made from the refuse strawberries of the market.

NUTS.

Judging solely by chemical composition, nuts should be classed among the most nutritious foods. The following figures give the percentage composition of sweet almonds, walnuts, and hazelnuts, from numerous analyses collected by König: —

	Water.	Proteids.	Fat.	Starch and		Ash.
				Sugar.	Cellulose.	
Almonds	5.39	24.18	53.68	7.23	6.56	2.96
Walnuts	4.68	16.37	62.86	7.89	6.17	2.03
Hazelnuts	3.77	15.62	66.47	9.03	3.28	1.83

But nuts are not easily digested, and, with the exception of cocoanuts, do not form an important part of the food of any people. They may be regarded simply as luxuries, so far as their use in this country is concerned. Crushed acorns are used to some extent in the adulteration of ground coffee.

VEGETABLE OILS.

On account of our abundant supply of animal fats, the vegetable oils are not extensively used as foods in this country. The one best known is olive oil, which is used as a dressing for other foods. Olive oil, however, has been largely adulterated or supplanted by cotton-seed oil, large quantities of which are sold as olive oil.

CONDIMENTS.

Condiments are substances whose employment in cooking is for the sole purpose of seasoning foods. However, at least one member of this class — common salt — is essential to healthy existence. Condiments improve the taste of foods, sharpen the appetite, and improve digestion. While much benefit arises from this use in small amounts, when taken in excess they may prove highly detrimental to health.

It is stated that certain tribes in the interior of Africa exchange gold for salt, ounce for ounce. This illustrates the great need of this substance felt by the animal system. We know that wild animals sometimes travel hundreds of miles in search of salt-licks. Experiments have been made in which two oxen were placed under exactly the same conditions, and furnished with the same food, save that salt was denied one, and given to the other. The one deprived of salt did not thrive as did the other.

The purity of salt is judged by its whiteness, fineness, dryness, and perfect solubility in water. The coarser kinds of salt contain compounds of lime and magnesium, are often dark in color, and absorb moisture from the atmosphere.

Vinegar is an acid fluid which may be produced by the fermentation of any solution containing sugar. Cider and wine vinegars are most highly prized, though the following varieties are now sold in this country : —

1. Cider vinegar, from apples and pears.
2. Wine vinegar, from grape juice and inferior wines.
3. Malt vinegar, from barley.
4. Beer vinegar, from sour ale or beer.
5. Glucose vinegar, from grape sugar.
6. Crab vinegar, from crab-apples.
7. Artificial vinegar, made with dilute solutions of the mineral acids, especially sulphuric acid.

The acidity of vinegar is nominally due to acetic acid. Sulphuric acid is sometimes added to increase the acidity. The British law allows this adulteration to the extent of one tenth of one per cent ; but if the vinegar be properly prepared, such an addition is not necessary ; and if any addition be allowed, the

amount is likely to exceed that given above. Burnt sugar is sometimes added to vinegar to give it color.

The per cent of acetic acid should be at least 3. Of five samples recently examined, the smallest per cent was 3.2, and the greatest, 6.7. Only minute traces of mineral acids were found in three of these samples, while the other two were wholly free from such adulteration.

Table mustards are frequently diluted with tumeric, flour, or yellow lakes. Pepper is sometimes mixed with flour, bread, or starch. Spices are frequently adulterated with flour, starch, bread, and ground peanut shells. Cloves may contain arrow-root. In order to obtain spices pure, they should be purchased unground.

TEA.

Tea is the most extensively used and the least harmful of all beverages. Upon most persons it produces agreeable sensations. "It cheers, but does not inebriate." It relieves, to a certain extent at least, the feeling of bodily weariness, quickens the pulse, and deepens the respiration. Upon the nervous system it acts as a stimulant, and the excitation is not, as in the case of alcoholic drinks, followed by depression. Considerable discussion has been carried on over the question whether or not its use increases waste of tissue. This may now be considered as settled in the affirmative. Dr. E. Smith and others have repeatedly shown that the amount of waste matter in the air exhaled from the lungs is markedly increased. Tea, then, acts as a food principally by hastening the oxidation or burning of other substances in the body.

It creates a blast which burns up the half charred *debris* of the system, and from the burning or oxidation we receive increased energy. From what has been said, it will be evident that the only time when tea should be used is late in the day, after the heaviest meals have been taken. For the weak and debilitated, it is not suitable or should be used very sparingly. Its tendency to produce sleeplessness may also restrict its use.

So far as its chemical composition is concerned, tea contains but little of nutritive value. The high place of tea among foods is solely due to its effect upon the nervous system.

In the market there are two kinds of tea — green and black. Until recently, it was supposed that these were products of different species, or at least of varieties of the tea plant ; but it is now known that the two kinds arise from different methods of curing the leaves. In preparing green tea, the leaves are dried immediately ; while in the other, the leaves are thrown into heaps, and a certain degree of fermentation or decomposition is allowed to take place before the drying is perfected.

The chief constituents of tea are its active principle called theine, which is identical with the active principle of coffee, a volatile oil, tannic acid, and a small amount of ordinary food substances.

Theine forms from 2 to 3 per cent of tea. In making tea as is ordinarily done, the greater part of the theine is dissolved out of the leaves, — tea yielding its active principle to water more readily than coffee. From equal weights, three times as much theine is obtained from tea as from coffee. According to the investigations of Mr. Fellows, 224 five-ounce cups of tea beverage are made from one pound of tea, and 45 eight-ounce cups from a pound of coffee. This makes the cost of an ordinary cup of tea, when the leaf sells at 75 cents per pound, about one third of a cent ; and of a cup of coffee, when the berry sells at 27 cents per pound, about three fifths of a cent. In this estimation the sugar and milk added to these beverages are not considered.

The volatile oil of tea is the special stimulant, and the market value of a tea depends more upon this than any other constituent. The amount and quality of this substance present are judged by the odor as well as by the taste of the hot beverage. Large tea houses have experts who are called “tea tasters,” and whose duties consist of deciding as to the value of different samples by the odor and taste. By virtue of the volatile oil, tea increases the flow of perspiration, and thus, although taken hot, may act as a cooling agent. The volatile oil is more abundant in green than in black tea.

Tannin is also more abundant in green than in black tea. The object in making tea should be to dissolve as little of the tannin as possible, and at the same time extract as much as possible of the theine and volatile oil. To accomplish this, tea should be steeped five or ten minutes, by no means longer than ten min-

utes ; but the water should be kept warm after that until the beverage is drawn for drinking. Mr. Fellows found the amount of tannin extracted from the best Japan tea, after steeping for five minutes, to be 0.10 per cent ; after ten minutes, 0.98 per cent ; after thirty minutes, 3.09 per cent. It is to the tannin that the astringent properties of tea are due, and when tea has been boiled it is so astringent that it is well-nigh unfit for use, and, indeed, may cause derangements of the digestive organs.

Tea contains small amounts of albuminous and starchy substances, but, as has been stated, these are present in such small amounts that they are not worthy of consideration.

Tea is subject to the following adulterations, which fortunately are not largely used at present : —

1. “ Spent ” leaves, those which have been once used for making tea, are dried and mixed with fresh leaves. This adulteration is not practiced extensively in this country.

2. The poorer varieties are mixed with the better, and the whole sold as of first quality.

3. Green tea is sometimes tinted with indigo and gypsum. Prussian blue is said also to be used, but the writer has failed to detect it after examining many samples. Black tea is also tinted with graphite. This is not used in large amounts, and, as used, is not detrimental to health but is a pecuniary fraud.

4. Other leaves, notably those of the willow, elder, and beech, are added to the tea leaves. None of these are exactly like the tea leaf, and the adulteration may be detected by close inspection even without a microscope. The border of the tea leaf is serrated nearly, but not quite, to the stalk. The primary veins run from the midrib nearly to the border, and turn in so that there is a distinct space left between their terminations and the border.

Tea dust, which consists of broken leaves and sweepings of tea storage houses, is a legitimate article of commerce, yielding an average of 1.27 per cent of theine.

COFFEE.

It is unnecessary to go into detail concerning coffee, since it resembles tea in so many of its properties. The active principle of coffee, called caffeine, is indetical in chemical composition and physiological effects with theine of tea. The per cent of this

substance in the raw coffee berry is about one, and this is not given up so readily to water as that in tea.

There is no volatile oil corresponding to that of tea in raw coffee, but one or more such oils are generated by roasting. The physiological action is not the same, however, as that of tea. It is not so stimulating, nor does it increase the perspiration to so great an extent.

Tannin is present in a much smaller amount than in tea, and for this reason the steeping of coffee may be carried on longer than ten minutes.

The unground coffee cannot be adulterated to any extent, but the ground coffee put in packages and boxes is almost universally adulterated. Often it contains no coffee at all. A student of the writer examined all the specimens that could be obtained in the market. The first, known as Java coffee, put up by the "Centennial Coffee Company," of New York, contained, besides some coffee, chicory, pease, wheat, acorns, and corn. The second, "Gillies Gold Medal Java," contained very little coffee, being composed principally of wheat, much of it unground chicory, corn, and pease. The remaining samples were ground coffee, sold in bulk, and in every case adulterated.

CHOCOLATE.

Chocolate is prepared from the ground seeds of the fruit of the cocoa palm. Cocoa nibs consist of these seeds, which are about the size of almonds, roughly broken, while chocolate contains a substance — theobromine — very similar, but not identical with theine or caffeine. Its other constituents give it a very different position in the class of foods. The cocoa seeds contain from 45 to 49 per cent of fat, and from 14 to 18 per cent of nitrogenous matter. It will be seen from this that these seeds may be classed among the most nutritious foods. Chocolate always contains sugar, which has been mixed with the ground seeds.

Chocolate does not stimulate the nervous system to anything like the extent that tea and coffee do ; but for travelers and others who cannot obtain milk, chocolate may be used instead of that, the most nutritious of liquid food.

Chocolate is often adulterated by the addition of too much sugar, or with starch.

A MAN IN NEW HAMPSHIRE.

BY C. C. LORD, OF HOPKINTON.

I. WHAT is a man? This question is hard to answer. Man is many things. He is a machine. He is composed of many bones, muscles, nerves, etc., all designed to operate in unison in one body. Yet he is more than a body. He is endowed with certain superimposed attributes. They are sensibility, intelligence, comprehension, etc. Still every mental endowment, as well as every bodily organ, is specially identified in man's nature. There can be no true life, education, or accomplishment unless every department of man's nature is taken into account.

Structurally, man is amenable to nature's law of debt and credit. Like any machine, he wears. Every time he does, thinks, or feels anything, his constitution sustains a loss. He may not always realize this fact, but the fact still exists. Hence, being active, man is constantly in need of repairs or recuperation. But there is a more important respect in which man is a machine. He is like a clock. A clock is wound up and runs down. Man is wound up till middle life and then runs down. Man is in his full power in middle life. Before and after middle life, he is in partial power. In this he is inferior to a clock. He has no regulator to make him run evenly. Neither can he be wound up but once in a lifetime.

We have thus far spoken of man as if all men were alike. They are essentially alike so far as we have stated the case. They are unlike in every particular illustration of the general fact. No two men are just alike in their proportions of structural

organization and power. Some men have more bone, or muscle, or nerve; others have more sensibility, or intelligence, or comprehension. The parts and attributes of manhood, therefore, express indeterminable varieties. The law of nature that affords these varieties cannot be changed. It is co-existent with creation itself. Consequently, we must contemplate the human race as an aggregate of varieties. When we order anything for human society we must do it with respect to the law of varieties. When we ask anything of a man we must do so in view of his fitness for something. The same is true when we affirm anything of a man. Hence, when we say, "a man in New Hampshire," we mean a certain kind of man. We mean one who cannot exist except in certain conditions and circumstances. We will try to define them.

II. A man is a very delicate machine. He is more delicate than the finest watch ever constructed. A fine watch is affected by a thousand and one accidents. Position, management, temperature, electricity, and many other things, affect the usefulness of a fine watch. The same is more true of a man. A watch cannot be successfully used in a place where there are many unfavorable conditions. So with a man. In New Hampshire there are certain local conditions peculiar to its latitude, longitude, and other descriptive and physical geographical aspects. No man can encounter these conditions successfully unless he has a certain personal constitution. Observe what we say. We are not speaking of bare existence in New Hampshire, nor of indifferent social life here. Like many other people of our state, we are possessed of an ideal theme of manhood. When we speak of successful life in New Hampshire, we mean the life of the standard New Hampshire man. We mean the man who can face the elements, develop manhood, and make his personal influence felt in the social circles of our state.

Let the reader in imagination take a position of observation. The place is the railroad passenger station of our state capital. The time is the middle of summer. He sees a vast number of people coming on the trains. Among them are numerous successful men. A good observer knows them at a glance. Their forms, aspects, and manners identify them unmistakably. But

they are in great variety. The practical and the ideal, the aggressive and the submissive, the active and the sedentary, — all appear in the various forms of successful manhood. There are stout and thin men, muscular and brainy men, slow and quick men, — all leaders in their appropriate spheres. Now let us change the time of observation. The reader stands in the same place in the middle of January. There are fewer people coming now on the trains. There are fewer leading men among them. They are also more uniform in personal appearance. There is a predominance of the physically vital element among them. They incline to largeness of stature, rotundity of form, breadth and fullness of face and trunk, and general bodily solidity ; but, other things equal, they have front brains of moderate size. They are strong, practical men, but they are not predominantly intellectual men. Why this great change since summer ?

In the summer there were men from nearly or quite all parts of the civilized world. They were the representatives of numerous latitudes and climes. Numbers of them came to New Hampshire to stop, as it were, only a day. They came to rest from labor, breathe the air, see the landscape, or otherwise to enjoy recreation. With the advent of autumn, like birds of passage, they departed. They were not in any strict, technical sense, New Hampshire men. In the winter another and a more homogeneous class of prominent men linger here. They are the men who stay here all the year round. They are a part of our state social identity. They are the men who are as strong as our rock-ribbed hills themselves. They face the elements, encounter ruggednesses, shape enterprises, lead communities, and in an eminent sense make their personal influences felt. They are the Atlantes of our state. They carry New Hampshire on their shoulders. Other New Hampshire men have influence. These men have that kind of influence that is personally predominant, and without enlisting which no general social enterprise in New Hampshire can be accomplished.

III. Why are such men leaders in New Hampshire ? They are the result of a kind of "natural selection." Roughness of surface, severity of climate, and attendant obstacles determine the form and character of predominating personal influences. A

machine, designed to work against odds, must have strength ; to have strength, it must have size ; to have size, there must be a comparative absence of specially delicate functionalities. Nature makes and executes its own laws. The law of size and strength in the representative New Hampshire man does not imply other than good, practical intelligence. When so much of individual vitality is used up in developing a form and force to surmount the natural obstacles to life in New Hampshire, a comparatively small amount is left for superincumbent mentality. The true New Hampshire man is not an idealist. His mental characteristics are strongly marked, but not delicately poised. He is a reasoner, not a seer ; he thinks, not dreams ; he is living prose, not poetry.

The writer has seen a person of moderate vital force and delicate nature move from a low, warm latitude into New Hampshire, and in a comparatively short time lose numerous pounds in weight, though there was no attendant illness of body or mind. Whence came this loss of weight ? From a loss of physical substance. Whence the loss of physical substance ? From the loss of nutritive power. Whence the loss of nutritive power ? From the loss of energy in maintaining life in the presence of great natural obstacles. This is an extreme case, but it furnishes an apt illustration of a general law. There is every variety of mean between two extremes. We shall see the use of this remark hereafter.

IV. All true enterprise is creative. In other words, it develops, reforms, perfects. True enterprise begins with something, and ends with something else. It makes things what they were not at first. This fact is true of material, intellectual, and moral enterprise. Material enterprise, for instance, builds a house ; so intellectual enterprise establishes a theory, and moral enterprise confirms a law. Enterprise, in the end, determines advancement, leadership, lordship. He who can only repeat is of only secondary use. Such is the natural law of society, and nobody can change it. It behooves us to consider how the law of social enterprise is to be illustrated in New Hampshire.

Experimentally, enterprise begins with thought. A man first thinks of something ; afterwards he does something. Thought is like the light of the sun. Its influence is universally dispersed,

but it is caught here and there and reflected and refracted according to the nature and use of the recipient form. We have told, in a general description, the kind of manhood that shapes social affairs in our state. It follows that, individually and collectively, enterprising people in New Hampshire must aim to develop those social schemes that meet the administrative capacity of our social leaders. Socially speaking, everything else, however genuine it may be, must exist only as an ideal element and not as a fact of actual realization. In other words, we in New Hampshire can do nothing but that which our soil and climate in their circumstantial details will let us do. However, let us not mistake. The writer does not purpose to assume the attitude of a prophet. We are not specially designing to forecast future ultimate results, but to consider the law of local enterprise.

All our individual and collective efforts in New Hampshire should illustrate economy. We should ascertain and utilize the true value of everything. Waste is specially ruinous in our state. We must labor to save our bodies, brains, hands, and materials. In a land where simple existence reduces the physical substance of the most delicate human organism, no one can afford to trifle with his resources. In New Hampshire, a man should consider economy when he eats or drinks, lies down or rises up, goes out or comes in, works or rests. In this we tread upon the domain of physical and material details, but we cannot stop to enter it. However, the enforcement of the economical idea suggests a limitation of operation. We should not take up too much ground. One thing well done is better than many things badly done. This is true everywhere, but especially in New Hampshire. The application of the thought extends to every department of use. It is physical, mental, and moral truth. An honest New Hampshire farmer, who recently advised an organization of the Patrons of Husbandry to discuss all profitable social subjects, was in practical error. A social organization in New Hampshire should have one predominant purpose, thought, and action, and no more. Dividing its object, it wastes its resources and ruins its prospects. The same is true of an individual. This reflection leads us to further incidental remark.

V. Each sphere of operation in New Hampshire is necessarily

limited. Local accomplishments must therefore be special. Life in our state will not admit of a prevalence of glittering generalities. Energy, enterprise, and success must be departmental in character. There can be few truly great men in New Hampshire. There are and will be in our state men of strong purposes and relatively impregnable judgment and efficiency in their particular spheres. The truly great man, however, has a logical conception, as it were, of all spheres and objects, and can turn his genius successfully to multifarious ends. Men of great capacities may be born in New Hampshire, but they will eventually migrate or become stunted by the stress of circumstances. Our possibilities of accomplishment being special, our methods must be likewise. We have already affirmed this point. We now proceed to a more distinctive illustration of it. In New Hampshire, when social plans are laid, the work should be done with reference to natural and unavoidable contingencies. In our state labor must be predominantly manual, in distinction from mental; intellect must be practical, in distinction from ideal; morals must be positive, in distinction from negative. Where the soil is hard and the climate chill, he who successfully encounters the natural obstacles to life develops a characteristic aggressiveness of purpose and thought that will not readily brook the restraints of refined social policies. The ecclesiastical dignitary who once said that he found "will and won't Christians everywhere, and especially in New Hampshire," was not altogether a subject of prejudice. The predominance of the positive conception in local society is easily demonstrated. The writer has listened in New Hampshire to public discourses, delivered by men of eminently comprehensive knowledge, thought, and instructiveness, when their words fell almost fruitlessly upon the ears of their audiences. There was not enough of special application and emphatic assertion in their utterances. On the other hand, a man of few ideas, but with the capability of dealing out words in sledge hammer blows, will often carry a New Hampshire audience by storm. In the progress of society, from generation to generation, a condition of practical necessity assumes the form of an inherited predisposition. In the minds of the children of our state there is witnessed an unmistakable tendency to the assertion of an instinct of posi-

tiveness. This assertion obtains in the schoolroom. It occasions the frequent predominance of mathematics in the school curriculum. In general, our boys and girls will learn arithmetic, algebra, etc., to the expense of other things. A school teacher, also, is often ignorantly assumed to be full-fledged if efficient in mathematics, whether he knows anything else or not. Apparently, a teacher who is deficient in many other things can sustain a reputation in many localities if he is reliable in mathematics. Whence this subtle ascendancy of figures? From the necessity of calculation. Whence the necessity of calculation? From the struggle for existence. To the child, to the teacher, to the parent, the inevitable digit is the symbol of a living in the face of portentous obstacles, before which there is an unavoidable endeavor to reduce everything to a mathematical certainty. In the sphere of the calculation table are hope and life, but without are despair and death.

VI. Our subject is inexhaustible, but we must hasten to a close. One or two remaining reflections will be condensed and general. We may profitably add a few observations upon citizenship. We have seen that certain circumscribed possibilities are open to the people of New Hampshire. We have defined certain dominant features of those possibilities; consequently we have nothing essentially new to express. Still we may add something that will increase the practical emphasis of our general theory. The predominantly successful manhood attainable in New Hampshire being of a positive, strongly individualized cast, popular society in every department is marked by vigorous outlines of public policy. This fact we have already illustrated. In citizenship, our inevitable popular characteristic develops into a jealousy of personal identities and local privileges. In sentiment, and in a large measure in practice, the political conception of our New Hampshire citizens is and will be democratic. We separate the term democratic from its commonly entertained significance. We need not ask if a large political party in our state is called democratic, republican, or something else. No large party in New Hampshire will ignore the importance of individual ambition, effort and accomplishment in political counsels; nor will it disregard the claims of local communities in the departments of

state. To live, grow, and thrive in New Hampshire requires too much identification of individual energy to make it possible for any administration to overlook its relative significance and claim. Names may change, men may die, organizations may dissolve, but the masses of the people contending with a rough climate and a hard soil, the leaders of every considerable community will be as firm in their individualized and localized conceptions of privilege as our eternal mountains. All the conceptions, sentiments, and ideals in contravention of the purest democracy that creep into the minds of our New Hampshire people are like delicacies on the substantially furnished table of a state citizen ; they are only to be tasted, not appropriated as main reliances. Political life in New Hampshire may occasionally muse in a dream, but it must mainly struggle with positive realities. We may have many a Cassius, and occasionally a Brutus, but a Cæsar is a political exotic that can flourish never.

A great deal is now being said about the possibilities of life and enterprise in New Hampshire. Our people are advised to remain, work, and prosper. We find no fault in the premises. We have endeavored to point out certain unavoidable contingencies in local human existence. We have tried to show what people must keep in mind while they are trying to live in New Hampshire, conceiving our state as their promised land. Every considerable community is largely composed of laborious people, exposed more or less to conditions presented by nature itself. Whoever lives long in any community, all the time engaged in the struggle for existence, unavoidably becomes an integral part and parcel of the local, social compact itself. It is of no use for a man to reside in New Hampshire, thinking he can live and be just the same as if our soil were an easy instead of a hard one, and our average annual temperature 60 to 80 degrees above zero instead of 40 to 50. We have sufficiently detailed our reasons for this conclusion.

THE FAMILY GARDEN AND ITS PRODUCTS.

BY A. J. FOGG, ESQ., OF NORTHWOOD.

IT is a common saying in country, town, and village, "My garden furnishes half the living for my family through the summer and fall."

While this may be an exaggerated expression, nevertheless it cannot be denied but the products of a well cultivated garden furnish a large portion of the most palatable and healthful food that comes to the table of the rich or poor man through the warmer months of the year. A dinner-table in the summer or fall, devoid of the products of the family garden, is about as enjoyable as a religious service without singing. In fact, through the year, a well supplied table is represented by the products of the garden to a greater or less extent. The cabbage, beet, turnip, squash, parsnip, onion, etc., belong to the dainties of the table of the epicurean through the winter and spring as well as in the warmer months.

There are in the United States not far from five million farms and twelve million families. Twenty-five per cent of these families live in the cities and large villages, leaving seventy-five per cent or nine million in the country ; and it is safe to state that there are nine million family gardens (not to say anything of "market gardens ") in this country.

The managers of our national census at the various decades have neglected to prepare any tables to furnish an approximate value of our family garden products, but only the amount sold as market garden products. As rendered by the census of 1870,

the amount of garden vegetables sold the year previous was \$20,700,000, and in 1880 about the same value, owing to the depreciation of values in currency. The value of market garden products sold at the present time is not far from \$35,000,000, or nearly half the value of the orchard production of the country, which includes apples, pears, peaches, oranges, etc. The value of the products of the family garden has never been considered by our statistical officials, but there is no doubt if the true figures could be obtained, it would aggregate the large sum of \$150,000,000 annually. It is also a noted fact that the agricultural department at Washington has not given that attention to the garden which it deserves. A few garden seeds are annually distributed, but that is about all, except now and then a paper on some kind of insects affecting garden vegetables, accompanied by an indefinite remedy.

There is no use in disguising the truth, for, as a rule, the family garden of the farmer does not receive that attention which its importance merits in aiding the support of a family if rightly managed. The farmer is too apt to think that two or three acres of corn must be attended to, if many of the wants in the garden are neglected. He forgets that a half acre of garden ground well cultivated will yield in all its various products more value toward the support of a family, over and above expenses, than any two acres of corn or potatoes ever grown. The garden is one of the principal sources from which springs a large portion of the luxuries of our tables, yet it is one of the most neglected plots of ground, considering its value, that the farmer possesses. Rainy days and odd hours are usually all the time the farmer spares to cultivate his garden, and it is a lamentable fact that in many gardens the rankest crop is the grass and weeds which are suffered to grow through neglect, and thereby check the plants and exhaust the fertility of the ground. But such neglect by many farmers must be expected as long as public men neglect to investigate the importance and value of the garden and give statistical facts.

While we acknowledge the supremacy of gardens, as now cultivated, over other lands the farmer tills, yet their value could be doubled if properly attended to or as is the well managed market garden. We know a market garden of sixty-five acres, with com-

mon seasons as to wet or dry, that yields an annual value in the various kinds of garden products of \$10,000. Thirty years ago this same land, then under the ordinary farm cultivation, did not yield an annual value of \$500, "all told." It is not to be expected, or even desired, that all farm lands should be cultivated under the market or family garden process, but as far as the family garden is concerned, its product is not overdone, and double the amount could be raised and used to advantage in families that pretend to cultivate gardens for their own use.

But we commenced this article to speak more particularly of

THE CABBAGE, ITS CULTURE, PROTECTION, AND USES.

This is one of the most important and useful vegetables raised. A dinner-pot in almost any family in the fall, winter, or spring, with a supply of corned beef, pork, bacon, and potatoes, is considered rather barren if the cabbage is not boiling beneath its lid. Owing to our varied climate in this country, north and south, and quick mode of transportation, together with keeping the cabbage five or six months after it is harvested, it is usually found in the markets of all our northern cities and large villages in every month in the year.

The people living in New England, in proportion to the population, do not raise or consume as many cabbages as they do in many other sections of our country where there is a large element of foreign population. As a general rule, the manner of cooking cabbage in the eastern states, and especially in the rural districts, is to boil it with some kind of salt meat ; but in many sections of New York and states west, where the German population is quite a per cent of the whole, the cabbage is served in various styles,—such as boiling with salt and smoked meat, chopping fine and frying, seasoned with butter, pepper, and salt to suit the taste. It is used as pickled "slaw" in soups, and largely in what is called by the Dutch of Holland "sour-crout." We well know that this Dutch food is ridiculed by nearly all New Englanders who have tasted it (and by those who have not), owing to its peculiar smell ; but let any Yankee go west, and take up his abode where there is quite a sprinkling of Germans, and he will soon learn to relish "sour-crout" and will frequently "hold up his plate for more."

It may not be amiss to state to New Hampshire people, and especially the housewives, how "sour-cROUT" is made. Late in October take solid cabbage-heads and chop them fine with a chopping-knife, sprinkle some coarse salt in the bottom of a barrel or any other tight vessel, and then place in a layer of the cabbage and press or pound it down solid, and then more salt, and so on until the desired quantity is obtained; then put the barrel in a cool place, and the salt and cabbage will soon create a brine which in a short time will work or ferment, and cause an acid taste to the cabbage, and it will become quite tender. It will take some four weeks for the compound to go through this process, but if that is too long to wait, the vessel can be placed near a stove and it may be ready for use in about ten or fifteen days. But if the barrel is placed in a dry cellar, the contents will not emit such an odor, and the "cROUT" will keep good till late in the spring.

The "cROUT" is served by frying in butter, and may be used with vinegar when eaten, or it is very good cold as a relish. When living in Washington we boarded in a New England family, and through the spring it was on the table nearly every morning, and we noticed that the eastern boarders did not "pass it by." It is generally used by many families living on the Hudson below the mouth of the Mohawk, where there is a large foreign population. On the Hudson flats between Cohoes and Albany, the average crop of cabbage is estimated at over 1,000,000 heads annually, and upon the Mohawk as many more, besides the market gardens in the vicinity of Albany and Troy back from the river flats. In the immediate vicinity of Washington, D. C., the market gardens raise from five to twenty thousand heads annually, and in the northern section of Prince George's county, Md., market farmers plant from 25,000 to 160,000 heads, and much of it is used in "sour-cROUT."

In Albany or Troy it is not considered an extreme quantity for a person to purchase one hundred heads of cabbage for family use through the winter, and this four dollars' worth of cabbage, they say, will go further toward supporting a family than twenty dollars expended in any other way. In the time of the late war, in 1864, the Soldier's Aid Society at Cincinnati thought they would

send their "boys at the front" some dainties for the holidays, and among the viands selected were two hundred barrels of "sour-cROUT." These facts furnish sufficient or conclusive evidence that what is termed a Dutch food is considered a luxury by many people in this country. Let our New Hampshire housewives put up a jar of "sour-cROUT," and while they may not become Dutch women in every sense, still they may become lovers of one of the Dutch modes of cooking cabbage. In the kingdom of Wurtemberg, Germany, with an area not as large as Massachusetts, and a population of less than 2,000,000, our consul reports the average annual yield of cabbage at over 50,000,000 heads.

Owing to the thick leaves of the cabbage, it retains its succulent nature for a longer period after harvesting than almost any vegetable whose nutritious qualities grow above the ground. If properly cared for, it will retain its green, succulent state for five or six months. Cattle are fond of cabbage, and it is not expensive; besides it is beneficial to feed a few heads to them every week through the winter for a change. The same can be said of fowls. They are as herbivorous as the cow or ox, only they require their vegetables green and juicy. Nothing is more healthful and beneficial to hens, turkeys, geese, etc., than cabbage fed two or three times a week through the winter and spring. It is no more expensive than corn or potatoes if farmers would think so and act accordingly.

The best kind of soil to grow cabbage is moist, sandy ground. But almost any soil (if not dry and sandy) well manured will grow a fair crop if properly attended to. With the exception of clear hog manure, almost any kind of manure well rotted and mixed with the soil will answer for cabbage. But it is better to spread on the coarser manures in the fall and plow it under and again plow the ground in the spring and apply the finer fertilizers in or around the hills of cabbage, such as phosphates, guano, night and hen manure compost in the cabbage hills, and ashes, lime, etc., on and around the cabbage; refuse salt is also good to spread on the ground. The more ammonia in the ground the better for cabbage, — to prevent club-foot and to promote their general growth.

Cabbage for fall or winter use should have its seed sown about

the first or middle of June, and for early use in New Hampshire about the first of May. Some prepare the ground and sow their seed where they intend the cabbage to stand and grow, while many sow the seeds in one part of their cabbage plot and when large enough take up and transplant in rows. We prefer the latter course as they can be set out more even and the ground better prepared for a successful growth. Where the ground is rich, the rows should be about three feet apart, and the cabbages two or two and a half feet apart in the rows. Before the plant is set, the ground should be well pulverized and about one and a half tablespoonfuls of phosphate put in each hill; but care should be taken that none of the roots of the cabbage directly touch any of the phosphate, as it is sure to eat the fibers of the roots and retard the growth of the plant and perhaps destroy it. Where there are not more than two or three hundred plants to be set, it is far better to put the phosphate in the hill some two or three weeks before the plant is set out. By this process the strength is neutralized with the soil and is far less liable to injure the plant. But where there is a large area set with cabbage and the ground is furrowed out, this cannot be expeditiously done, and the phosphate must be put in when the plant is set.

An acre of ground will set from 6,000 to 8,000 plants, and we have heard of 10,000 plants on an acre, while others set out as low as 5,000 plants. Cabbage plants should be set low enough in the ground so that after they are cultivated and sufficiently hoed, the surface of the ground will be level or, if anything, concaving towards the stem of the cabbage, so when it rains, the water will settle around the roots instead of running into the center of the rows, as is too often seen. This keeping the surface of the ground level is applicable to nearly all garden products, field corn, etc. We would say here, it does not require any more time to do such things right than to do them wrong, and often not as much. The ground around cabbages should be stirred often, and a spoonful of ashes frequently strewn around the plant is beneficial.

When cabbage plants break the ground from the seed, they become the victim of attacks from animated nature, comprising quite a portion of the insect tribe or family, until they are

gathered some four months later. First, they are attacked by the voracious fly, flea, or beetle. A frequent sprinkling of wood ashes and air-slaked lime, when the young leaves are wet with dew or rain, is generally an efficacious remedy in protecting the young plants from being destroyed by these pests.

The next enemy the cabbage has to contend with, against annihilation, is the cut-worm, about the time the young cabbage is transplanted, or left alone in the hill to grow and "head." There are several species of these cut-worms, as they are called by entomologists. They are called the dark-sided cut-worm, the variegated, speckled, glassy, greasy, w-marked, shagreened, and granulated cut-worm. To the unobserving farmer, relative to cut-worms, all these various species look nearly alike, but many of these kinds are seldom seen in the northern states, but are common in the south and southwestern states. The most common kinds in New England are the w-marked and greasy cut-worm.

The cut-worm, in its coming into existence, is of the lepidopterous order. After existing in a larva or worm state, feeding on vegetation, it crawls to some dark retreat near or in the ground, and winds itself in its web into a pupa state, or more like a cocoon, and in a few weeks the apparently curious worm comes out into a beautiful butterfly or moth, and after a few weeks longer this moth lays its eggs, and in a short time the larva is hatched out and soon becomes a full-grown worm. In the warmer climates, this metamorphosis of the cut-worm is frequently three times a year, but in the northern states it is doubtful if it occurs more than once.

The moth of the cut-worm is nocturnal in its habits, and usually flies only after dark, or just at dusk of evening, and directly does no injury to plants in its transitory life; but of its progeny, the cut-worm, not so favorable a record can be given. In the northern states, the larva is hatched out late in the summer and fall and feeds on such vegetation as it can obtain, and hibernates till the frost leaves the ground in the spring, when it comes out ready to attack any tender plant that may come in its way. While it may thrive on some kinds of weeds and spontaneous vegetation, the farmer only particularly notices its visits for food

when he sees the young stalk of the cabbage, bean, tomato, corn, pea, etc., eaten off near the top of the ground, and finds their executioner apparently safely burrowed in the ground near the trunk of its beheaded victims. There is no resurrection or resuscitation of his wormship's victim any more than there would be to the decapitated chicken, and the only consolation the farmer or gardener can get out of the source of his trouble is to bruise its head under the heel of his boot.

The full-grown cut-worm in the spring and early summer months is about one inch long, and of a dark brown color, with almost indistinct stripes of a lighter or darker hue running along its sides or back. It burrows in the ground and is nocturnal in its manner of getting food, coming out at night and crawling along on the surface of the ground till it comes to the bean, cabbage, etc., and eats it off near the ground. If satisfied with its meal it will again burrow near the roots of the plant it has cut off, where the farmer finds it and wreaks his vengeance on it in the morning. But if the appetite of the worm is not satisfied on decapitating the first plant, it goes to the next; and one worm has been known to eat off three cabbage plants in one night. The moth has dark brown wings and is not as handsome as some of the butterflies seen flying in the daytime.

But the work of the cut-worm on the cabbage plant is more serious than on many other plants, like the cucumber, beet, bean, etc., for the reason there is more than one plant in a hill, and if they are thinned out by the cut-worm it may effect no injury. But the cabbage is different. When the plant is gone, another one must be put in its place, or the ground left vacant. It requires time and patience to reset these cabbage plants; besides, it makes the growth uneven, but it is the only alternative after the plant is cut off. Some years, twenty and even fifty per cent of the cabbage plants are eaten off by the cut-worm. The inquiries in regard to cabbage worms, and the best remedies to evade their annual attacks, of late years have been so numerous that the heads of the agricultural department at Washington have made a thorough investigation in various sections of the country, how to treat these pests, but as yet have arrived to no effectual or satisfactory remedy to fully prevent their periodical ravages.

It can be said here that not one tenth of the cabbage worms hatched from the eggs of the moths ever return to a pupa state, but are destroyed by parasites, which are natural enemies of the cabbage worm. They spring from a fly that lays its eggs upon the larva by a puncture through its skin or scale, and frequently the worm is not destroyed till in a chrysalis state and never comes out a miller or moth. The agricultural reports of 1883 and 1884 have each some forty pages devoted to cabbage worms, as to their habits and how to prevent their destroying the young plants and the growing cabbage.

As a protection to young plants from the cut-worm, the report of 1884 recommended several remedies, but nothing that is fully satisfactory. One correspondent suggests, when the young plant is set out, wrapping the stem in a walnut leaf or brown paper so that the worm will not be able to reach the stem. But the report says, "A good deal of time and care are necessary to make a perfect wrapping of the stem, and this constitutes, so far as we are aware, the only objection to the use of this preventive."

Another preventive "consists in trapping the worms in deep holes near the base of the plants. For this purpose, a long, smooth, sharpened stake, an inch or two in diameter, is used, and almost as fast as a person can walk through the field, it can be thrust once or twice deep into the ground near each plant, leaving a smooth, round hole, out of which, the cut-worms having once fallen in cannot crawl, and the chances are that in their nocturnal prowlings they are pretty sure to fall into this well." We are led to believe the chances are they will not fall into these pits, but will crawl between them and destroy the plant. We have seen plants eaten off within an inch of one of these holes. This is not a new remedy, but was advocated over fifty years ago, yet has been but very little practiced.

Dr. Ormler, of Wilmington Island, near Savannah, Ga., says: "My method of dealing with cut-worms of late years has been to remove them from the field before the crop to be jeopardized is up or the plants put out. By placing cabbage leaves and bundles of grass along the rows of watermelon hills four years ago, I caught, by hunting them daily, 1,538 worms on about one fourth of an acre, before the seed was up, and lost but a single melon

plant." Again, the doctor says: "After the land is prepared for cabbages or any other crop needing protection, I place cabbage or turnip leaves in rows fifteen or twenty feet apart, all over the field, and about the same distance apart in the rows. The leaves are first dipped in a well-stirred mixture of a tablespoonful of Paris green to the bucket of water, or they may be first moistened, then dusted with a mixture of one part of Paris green to twenty of flour and placed carefully with the dusted surface next to the ground. Two such applications, particularly in cloudy weather, at intervals of three or four days will suffice to allow the cut-worms to make away with themselves, which they generally do with perfect success."

Professor Riley, the national entomologist, recommends the doctor's remedy, only he chiefly uses clover sprinkled with Paris green water, laid at intervals between the rows. But if this is efficacious, it would not be a satisfactory preventive, for a large portion of the farmers would not have poison scattered around so promiscuously where fowl or cattle are liable to eat it and especially where there are young children in the household.

But the most effectual remedy for the protection of young cabbage plants against these brown cut-worms that do their work by night is a new invention, for which an application is being made for a patent right, and is called a "Cabbage Plant Protector." This protector is a cylinder three inches, more or less, in diameter, and about two inches wide, and is made of any kind of sheet metal, but tin is the best. The sheet is cut about ten inches long and of the proper width, with a flange on each end, like that on a stove pipe, and then locked together, which makes a perfect cylinder. When the plant is set out, the protector is locked around it and sunk about half an inch into the ground, which makes a perfect fortress around the cabbage that his wormship can neither eat through, crawl over, nor dig under.

These protectors can be made large enough for cucumber hills or other choice plants, and there is no doubt but it is a sure preventive against these cut-worms eating off young plants. It is also claimed as being beneficial in growing plants, by the metal drawing the heat and moisture around the plant. When the cabbage or other plants need hoeing (which is often) the

protector can be unlocked and taken away without injury to the plant and be replaced again in a moment's time ; and in a dry time, when irrigation is required, the cylinder will hold the water around the plant, which will reach the roots, instead of running off on the surface of the ground. The expense of these protectors will be but a trifle, say not over 25 cents a dozen, while they will last for many years, if properly taken care of when not in use.

After the young cabbage plant has escaped annihilation in a single night by ground cut-worms, and begins to assume a respectable size, new dangers begin to threaten its further development. The last of July, especially if it is a dry season, butterflies, from white wings down to brown, are seen fluttering over the cabbage yards, which is sure to augur no good to this useful vegetable. The yellow wing moths, with one or two dark round spots upon each wing, are the most common to be seen ; but other species are there and their progeny sooner or later will be sure to develop itself to the detriment of the cabbage.

These butterflies are of the lepidopterous family and spring from the pupa of the worm. The moth lays its eggs on the under side of the cabbage leaf, and usually but two or three in one place, which makes it quite difficult to find them. If it is warm and dry, these eggs will hatch out in ten or twelve days and produce a green worm or larva that in ten or twelve days longer will be over an inch long, and usually feeds on the top of the leaf near the head. They are great eaters, but their digestive organs are very limited, as their excrements are nearly all cabbage and generally detect the work of the worm, which, by careful search, can be found and destroyed.

While nearly all of these green worms look nearly alike to the not over-scrutinizing farmer or gardener, yet there is a wide difference in their mode of eating the cabbage. The most dangerous of these insects to the cabbage springs from what is called the rape butterfly, and is a native of Europe. It was first known in America in 1857, and it was supposed to have been imported to Quebec with a lot of vegetables in 1856, and from this point they have been scattered over nearly every section of the United States. We here quote the description of this butterfly as given by Mr. Riley, the national entomologist : —

“The butterfly has the body black above, with the wings white. The front wings are black at the tip, and have, in the male, one black spot between the middle and the posterior edge, but the female has two black spots, sometimes three. The hind wings have a black spot on the front margin above, and all the wings are marked underneath very much as those of the female above, except there are no black spots on the hind wings. The hind wings below are yellowish, sometimes becoming even green. The species vary much, and there is a specimen in our collection in which the spots are so nearly obsolete above, that if it were not for the characteristic under surface, it could scarcely be distinguished from the potherb butterfly. There is also an infrequent variety which has the ground-color canary-yellow, instead of white, and which occurs mostly in the male sex, but occasionally in the female. The butterflies are slow and lumbering fliers, but are among the most assiduous insects, continuing on the wing from early morning till late in the afternoon. The eggs are deposited singly or in clusters of not more than two or three on the under side of the leaves. The eggs are laid at all times throughout the growing season of the year, or from May to October, in temperate zone.”

It is very evident that the wings of this species of butterflies are more frequently yellow and adorned with black spots than formerly, especially in the more northern states. And further, the warmer and drier it is, the more prolific are the butterflies and the worms, and consequently the more disastrous to the cabbage. After the worm is changed into a chrysalis state, if the weather is warm and dry it becomes a butterfly in about two weeks, but if it is rather cold and wet, the chrysalis remains in the same state through the winter and the moth does not come out until warm weather. It is the same with the eggs of the moth; if it does not continue warm in the fall months they will not hatch, and if frozen will never mature any more than the egg of a fowl. During the past season the warm and protracted dry weather was suitably adapted to the growing of butterflies and the breeding and ravages of worms on vegetables, especially the cabbage, and there is a general complaint of the cabbage worm on the later crops.

One writer, in speaking of the rape worm, says: "It is not content with riddling the outside leaves, but prefers to secrete itself in the heart, so that every cabbage has to be torn apart and examined before cooked. It is also necessary to keep a continual lookout, even after it is dished up, lest one gets such an admixture of animal and vegetable food as is not deemed palatable by the most of men." What has here been said of the origin and character of the rape cabbage worm is applicable, to a more or less extent, to all the greenish worms the farmer or gardener finds on his cabbage. While not like the brown cut-worm that crawls on the ground by night and destroys the young cabbage at a single stroke by decapitation, yet the green worm at a later date can work a great injury to the cabbage if not vigilantly watched. There is a small worm of a greenish color that is rather gregarious in its habits, and feeds on the expanded outer leaves of the cabbage and on the under side, but never touches the inner heads. These worms can easily be detected in their work by the edge of the leaf appearing dead and dry. Turn this leaf up, and perhaps fifty of these little worms about a quarter of an inch long will be discovered vigorously at work. In this case, tear off the part of the leaf containing the worms and stamp them under your feet.

Another pest to the cabbage is what is called the aphid fly, which makes its appearance in July and frequently remains till late in the fall. They come in large numbers, and produce the cabbage-plant louse, which is often found on the under side of loose cabbage leaves and upon the outer side of leaves near the head. If suffered to remain undisturbed near the head, the leaves become putrid with this mass of lice which will soon render the whole cabbage unfit for use. If the infected leaf is in its incipient stages, tear it off and destroy it. The cabbage-plant fly is another species. They deposit their eggs on the stem of the plant near the ground and produce the maggots that prey upon the roots of turnip as well as cabbage. It is claimed by many, and there is but little doubt that the work of these maggots is one of the causes that produce the club-root on cabbage. There are various remedies advanced to protect the plants from these maggots, such as dipping the roots, as the young cabbage is

transplanted, in oil or lye of ashes, sifting powdered tobacco on the leaves, etc.

But the best and only practicable remedy is to properly prepare the ground prior to transplanting with a fair quantity of ashes, a sprinkling of salt, and a tablespoonful of phosphate in each hill or where the plant is to be set; and after it is transplanted put the plant protector around the young cabbage, and then sprinkle a few ashes within the cylinder, and no fly will venture to lay its eggs within the circle, neither would they hatch nor the maggots live in the ground prepared as herein stated. Besides it being a sure preventive against maggots, it is the best mode to promote a successful growth of cabbage, and consequently in applying this remedy it creates no extra expense.

The remedies advanced to prevent the ravages of the green worm on cabbages partly grown are numerous, and in our judgment and experience but very few have any practicable effect or benefit in their application. We herewith briefly give a few of the many remedies as laid down in the various agricultural reports published at Washington. One says: "Hot water will kill every worm visible upon the cabbages. The water may be boiling hot when put in the watering can, but it will not be too hot when it reaches the cabbage leaves. The thick, fleshy nature of the leaves enables them to withstand considerable heat with very little injury." There is no doubt but hot water will kill the worm, and also place the cabbage in a precarious condition after it has been thoroughly saturated with boiling water, as not a quarter of the worms are visible but are down beside the heads near the roots of the leaves, and will require much water to reach them. This remedy, to be efficacious, will work like applying oil to the root of a cabbage plant to destroy maggots. In both cases, nine times out of ten, the remedy would destroy the cabbage as well as the worms and maggots.

The Persian insect powder is advocated as a remedy, at the rate of two hundred grains of powder with two gallons of water, and the mixture sprinkled on the leaves of the cabbage. This may do where the compound reaches the worm, but, as we said before, not half the worms will be touched and they will continue to "thrive and grow fat" under this treatment. Kerosene emulsion,

made by heating a solution of soap and adding it boiling hot to the kerosene, is strongly advocated. Churn the mixture by means of a force pump for five or ten minutes, or until it forms a cream, which will thicken on cooling. After going through this process successfully, take one part of the emulsion to nine parts of water and sprinkle or spray it over the leaves of the cabbage. While this compound may be effectual where it reaches the worm, the trouble is that very few of the worms will be touched, owing to the broad leaves of the cabbage and the insect being between them. Then again, there is great trouble in making a perfect emulsion, and if this is not accomplished, the particles of kerosene will injure or spoil the cabbage for culinary use. In fact, at first this emulsion was never intended for cabbage but for destroying insects on fruit trees and especially in the orange groves in Florida.

Dry application of lime, salt, pepper, or bran, road dust, or any other powder not deleterious in human food, is recommended against young worms. We are of the opinion that dry wood ashes moderately sprinkled on the cabbage is the most effectual remedy. As many of the worms are near the roots of the leaf and no dust can reach them to deter them from taking their daily meal, the dew or rain will create a lye from the ashes which will run down on the stem of the leaf to the roots and molest the worms. While the cabbage will stand quite a strong lye without injury, the worm will leave or die from the effects of the lye. But all these remedies depend largely on how plenty the worms are. If there are but a few worms, the application of salt, pepper, etc., may show considerable improvement against worms, but if the worms are numerous these remedies have but very little effect.

There is no doubt but the remedy should be applied at the origin of the trouble to be effectual. If the butterfly that lays the eggs which produce the worm could be destroyed or prevented from depositing its eggs on the cabbage leaf, then the cabbage would be safe from the ravages of these worms. Some advocate that poison sprinkled on the leaf will kill the moth or the eggs; but this is dangerous and many of the eggs would not be touched by the poison. In dry weather the butterfly is a thirsty

insect, and will draw moisture where it can be found. Take fly paper or any thick paper saturated with a poisonous liquid and lay it on cabbage leaves near the ground, and it will be sure to be found by the thirsty butterfly and destroy many of them; but still many will escape and lay their eggs, and worms will grow and eat cabbage, but it will lessen their number. Other simple remedies heretofore spoken of may save the cabbages from much injury.

Another remedy, which incidentally comes under our observation this season, we have faith as being the most efficacious of any yet advanced. A farmer near me, to save his cabbage from being destroyed by his hens, set some hundred plants in his corn-field. There are six rows of corn before the cabbages are reached and two rows are left vacant for the cabbages. While all cabbage yards in this vicinity have been much troubled by worms, these cabbages have hardly been molested. The butterfly flies low as a rule, and the thick corn has prevented it from reaching this farmer's cabbage to any extent. One warm afternoon while hundreds of butterflies were fluttering over and through my cabbage patch, I visited these cabbages in the corn and not a butterfly could be seen. If this is a preventive to debar butterflies from laying their eggs on cabbages, which produces these destructive green worms, it will be but little trouble for the farmer to prepare his narrow cabbage patch in his cornfield and with the aid of the cabbage plant protector against the brown cut-worm there will be no trouble to grow cabbages. Also the gardener can plant his sweet corn around his cabbage plot the same way. This may not be an effectual remedy, but it certainly has an apparently tangible argument in its favor. At any rate, it will cost but a very little time and expense to try it.

We have endeavored in a brief way to show the importance and benefit of a well cultivated garden, and how the cabbage should be treated from its incipient stages down to the culinary department; also the worm, which seeks its destruction from the young plant to the time it is harvested. There never will be an effectual remedy against the ravages of insects on the husbandman's crops, but in a measure they can be relieved. The farmer's work is based on uncertainty from the commencement until his

crops are gathered. It may be too dry or too late, or the insects may ravage, but when year after year rolls round, the constant and vigilant labor of the farmer is crowned with success. If the gentle hints on the various subjects brought up in this article may prove of some benefit to a few of the many, then our efforts have not been wholly in vain.

[NOTE. — It is proposed to publish a series of articles, similar to the above, in relation to other garden products. — *Sec.*]

SOME OF THE ATMOSPHERIC PHENOMENA.

BY S. D. LORD, OF MANCHESTER.

STORMS are generated in the atmosphere out of its constituents. They receive their support from it. Their energies originate from and are exhausted in the atmosphere. Storms are the result of forces, as well as of materials, always present in the heavens.

They are not lawless, but have method and are as subservient to law as the summer cumulus that floats above us, and yield to gravitation as readily as the drop of rain that falls from their angry clouds. We need not be surprised then when the gentle zephyrs are transformed to the wild hurricane and the air is thick with clouds, for we know the summer morning conceals within its loveliness all the elements of clouds, cyclones, and the fire of electricity. There is but a change of conditions when the heavens are darkened with clouds and the tornado rolls in their midst.

If we look for the forces developed in the mechanics of storms, we find the same agents at work there — heat and gravity — as are found everywhere in nature, and the materials they work upon are the atmosphere and the moisture it contains.

To better study our subject, we will ascend to the storm clouds. We see them to be mists, lighter than the air, therefore floating in it. Particles of these mists united together become heavier than the atmosphere and drop in rain to the earth. These, with the glare of lightning and the winds, moving the clouds apparently around a common center, — hence called cyclonic, — are all we find.

Our analysis is truly simple, and we comprehend it. But the cloud mass becomes denser, larger. The wind increases in force

because the atmosphere yields its moisture to the clouds, and the vacant air seeks its equilibrium with tremendous force. Now we understand this—the hurricane. Let us here apply our early studies. Water by heat is transformed to vapor, and the moisture by a change to a sufficiently low temperature is reduced to water again.

In these changes energies are collected or dispersed. Water is 770 times heavier than air, and a cubic foot of water converted to vapor would fill a space of some 1,700 cubic feet, that is, 1,699 cubic feet more than the original water occupied. Now, if this 1,700 cubic feet of vapor were suddenly reduced to water, there would be a vacuum of the 1,699 feet. Here is the vacuum for the winds to fill; they are demanded, and are more or less in force according as the vacuum is more or less complete. Here is the origin of storm winds. It is now our duty to speak more particularly of winds, as they form a very conspicuous part in all storms.

Wind is air in motion and elementary writers say there are *three forces* acting upon the atmosphere to give it motion, and Prof. Ferrel, formerly in the Signal Service department, names a fourth. These winds are developed as follows: 1. By difference in the weight or specific gravity of the atmosphere in different localities at the same time; 2. In the tendency of the atmosphere like liquids to move to lower levels; 3. By the daily revolution of the earth; 4. In the language of Prof. Ferrel, it “arises from a combination of a rotative east or west motion of the atmosphere with the rotatory motion of the earth.”

There is also an annual or orbital motion of the earth which I desire to consider in this connection. It may be included in the *third* force named before, but it presents to me a force much more important in relation to winds than the simple revolution of the earth on its axis. To explain, Mr. Ferrel and others credit this *third* wind to the simple daily revolution of the earth on its axis, which at the equator is something over one thousand miles per hour, diminishing in velocity every degree north and south, till at the poles it becomes zero, while the orbital motion is at the rate of 65,000 miles and more per hour, and is not considered by them. They would estimate only the revolving force of the ball

shot from the rifled cannon, while the momentum of the ball in its flight is not made a factor. It is evident, I think, the annual motion of the earth is the principle cause of this wind influence, with a slight increment of force by the daily revolution.

The air is considered an elastic body — forty-five miles or more in depth surrounding the globe — which moves upward of 65,000 miles per hour in its orbit and it must, it would seem, present a difference in depth in its *east* front and *west* rear as the earth plunges into space, and this would cause necessarily a difference in weight of the atmosphere on the earth as it revolves. There is such a difference daily as determined by the barometer, perhaps also explainable otherwise. There is a mean maximum and also a mean minimum pressure. This then may be a *fifth* influence or force acting to produce wind.

This explains the trade winds equally with the daily revolution which acts with it.

I give also (to digress a moment) some credit to this orbital motion of the earth in producing the ocean currents. The earth moving with great velocity to the east, the waters of the ocean mobile in every way in seeking an equilibrium would meet the advancing eastern shores greatly swollen, and a current as at St. Roque would flow to the north or south. Hence the currents would, east of the coast, rush toward it, and west of the shore recede from it. It is, of course, the resistance of the coast which deflects the currents to the north or south. I beg to refer the reader to any map of the ocean currents with an application of these suggestions to facts, remembering these ocean currents would generally tend toward the eastern shores of the continents and recede from the western, modified of course by intervening islands.

The foregoing named forces are sufficient to account for all phenomena of atmospheric motion.

The general current of the air is toward the east, following the motion of the earth in that direction, but it lags greatly behind, — and there are, in any given area of the atmosphere moving eastward, internal motions in every possible direction, — so in a storm the winds from internal causes may blow in all directions, yet the superior force behind is constantly urging the storm area to the east.

The prevailing wind in New Hampshire is the northwest. In the winter season this wind equals all the others. In the mountainous division of the state in the north the deflection is less to the south than the winds in the southern part.

There is of course a cause for this direction of the wind, being the resultant of all the forces. In the United States the storms start often just east of and near the Rocky Mountains, north or south of our latitude, and are followed by high barometrical pressure, coming in most cases from the Arctic Plain between the northern branches of those mountains and the waters of Hudson Bay, the resultant is the northwest wind pressing the storm to the east. It is observed, also, that many of the great storms swing around Lake Erie, and pass to the ocean, and then become subject to the Gulf Stream with a low condition of barometer, which deflects the western winds. These conditions with the monsoon per cent of deflection account generally for our prevailing northwest winds; and besides, the Gulf Stream flowing northward within two or three hundred miles of our coast with its warm waters, and consequently rarer air accompanying them, offers also an occasion for the northwest winds.

The Smithsonian department has published an elaborate work on the "Winds of the Globe," compiled by J. H. Coffin, LL. D., and completed on his decease by Prof. S. J. Coffin, and to this work (Vol. 20) I refer for data, with regard to the winds of New Hampshire.

The surface winds and the higher winds, as observed by the clouds, together average as follows in southern and central New Hampshire : —

SEASON.	Direction of Resultant.	Ratio of resultant to sum of winds.	MONSOON INFLUENCES.	
			Direction.	Force.
Spring	N. 67° 35' W.	.23½	N. 85° E.	.07½
Summer	S. 67° 38' W.	.26½	S. 13° E.	.19
Autumn	N. 75° 18' W.	.28	S. 55° E.	.02
Winter	N. 57° 25' W.	.49½	N. 34° W.	.22½
Year	N. 74° 9' W.	.30		

The average force of the wind is given for each season as follows : —

	Spring.	Summer.	Autumn.	Winter.	Year.
Average velocity of the winds per hour, in miles } 7.77 5.57 6.37 7.72 6.86					

The monsoon influences of course arise from difference of temperature in different seasons. In Asia, the monsoon winds are very important to commerce, and the ancient Greeks took advantage, not only in their commerce, but in wars, the winds blowing to the north in summer and to the south in winter. They arise from the first force suggested, viz., difference in the specific gravity of the atmosphere at different localities. The atmosphere in the equatorial Indian Ocean becomes heated in summer, rises, and the surface winds are drawn from the northern shores southward, and as the sun shines more direct upon the land in summer, that part becomes heated and the atmosphere rises and southern winds rush in to fill the place.

Prof. Coffin gives the force as 19 per cent S. 13° E. here in the summer, while the force of the wind is 5.57 miles per hour, and average for the year is 6.86. In the autumn, the velocity is 6.37 miles per hour, the interfering monsoon force only .02. We may now, following Coffin's data, trace an area of atmosphere fresh and moist from the Siwo Kuro or Japan Stream, across the Pacific Ocean in its flight eastward to New Hampshire, and still beyond. Landing on the coast of Oregon at Cape Blanco, it would rise above the Cascade range of mountains, and floating over them, and moving over their eastern valleys, deflected slightly to the south, pass over Idaho, and then reach the peaks of the Rocky Mountains, and with but little delay, pass their summits and onward over Wyoming, where, becoming colder and heavier, it would descend and become the surface winds of southern Dakota and Nebraska, and then moving over and parallel to the Platte, reach the Missouri with center near Omaha. A monsoon pressure from the south will then give it a slight movement to the north, and it passes swiftly over Iowa and northern Illinois to the region of the lakes. Its motion is now eastward over the southern lake territory to Pennsylvania, where, receiving an

impulse from the south, again it moves northeasterly over and parallel to Lake Ontario to the Adirondacks. The Atlantic now invites it to its waters, and changing its course to the east, it flies over Vermont and then, with a slight change to the south in its course, comes to New Hampshire as a northwest wind, less deflected at northern than at southern New Hampshire, where it reaches the ocean. But it still moves onward to the Gulf Stream and, changing its direction, becomes a west wind and flies to and over Europe, then over Asia to the Pacific again. Its velocity is about 12° daily and its journey around the globe is accomplished in thirty days. It has the fate of the wandering Jew. It never stops, but is always moving and will travel its course forever. It follows the earth in her daily revolution, but with only one thirtieth of her speed. It passes over fragrant lands and lofty mountains. It kisses the summits of the Rocky, the Caucasus, and the Altai. It moves oceans to rage with its blasts and calms them again to serenity in gentle zephyrs. Lightnings flash through it, and it waves to the deep thunders of storms and the roaring of volcanoes, and we are breathing it to-day without a thought of its history.

The atmosphere not only moves but has weight. The barometer shows that a column of air is equal in weight to the column of mercury, 30 inches. The column of mercury often changes from 30.50 inches to 29.50 inches at different times, and that shows the atmosphere weighs less some times than others. Weight has power : it turns our wheels and spindles, simply by the fall of water — gravity. There is gravity in the air. We weigh the atmosphere with the barometer, we measure the heat with the thermometer, and the moisture of the atmosphere with the hygrometer.

Let me illustrate the weight or force of the atmosphere and I think we shall all understand it, viz. : We will suppose we are in a room ten feet in every direction, representing a cube, length, breadth, and height. We will now, with the air pump, exhaust the atmosphere from our room. If the air is entirely exhausted, the force or pressure of the air outside upon our room, if at its average weight, will be 15 pounds to each square inch on all of the six sides. We can compute the whole pressure very easily by reducing the six sides to square inches, and multiplying the sum by 15,

viz. : 120 inches each way equals 14,400, multiplied by 6 sides equals 86,400, multiplied by 15 equals 1,296,000 ; that is, a pressure on the six sides of 1,296,000 pounds or 648 tons, or 108 tons on each side. Now if we open a space one inch square, the air would rush in with a tremendous force and would not cease to flow inward until the room was full again.

The air rushing to fill the vacuum we call wind, and here remember this force and condition ; we shall need it in the whirlwind to which I shall introduce you. We understand why and how the air is put in motion. It is force generated in seeking an equilibrium. But the air has not always this pressure of 15 pounds to the square inch. It is lighter sometimes and again it is even heavier. The average pressure of the atmosphere at sea level at 32° of the thermometer is 30 inches, and if the barometer marks higher than 30, we call it high pressure, and usually if below 30, we call it low, but this is sometimes relative, for if the barometer is 29.50 at Chicago and 29 at St. Louis, we would say it was relatively high at Chicago. The weight of the atmosphere by the barometer in use is more conveniently expressed in inches.

It is found the general height of the atmosphere will sustain a column of mercury 30 inches high at the sea level, and the variations then of the column of mercury will indicate the variations of the weight of the atmosphere. If, then, the atmosphere be 45 miles high, and of equal density, one inch of the barometer would represent 1-30 of 45, or a mile and a half ; and if the barometer should read 29 inches, it would represent the atmosphere 43½ miles high, so much in bulk, or perhaps in weight deducted from it. And, again, if the barometer read 30.50 inches, it would be 1-60 higher, or weigh more in that proportion. So when the air weighs more than 30 inches of the barometer, we say there is a high wave or high pressure, and if less than 30 inches, we say low wave or low pressure. Here we have a ready explanation of the terms high waves and low waves, as used in meteorological papers on the weather. You will see, then, when there is a high wave over our hypothetical ten-foot cubic room, there will be more pressure than 15 pounds to the square inch, and when a low wave is passing over it, the pressure would be less than 15 pounds to the square inch. The proportion of excess or loss is thus very easily ascertained.

The weight of the atmosphere diminishes as we ascend, for the same reason, the higher we go, the less weight of air is there above us. There is not so much air above the summits of the White Mountains as there is at Portsmouth harbor, since the summit is more than a mile higher than the ocean.

According to Prof. Loomis, the fall of the barometer one inch represents an elevation of 917 feet ; and so if at the base of a hill the barometer reads 30, and at the top 29, we conclude the hill is 917 feet high.

The aeronauts rising in a balloon can thus measure the height of their flight in this way. If one so rising should find his barometer had fallen five inches, he would be about 5,000 feet high. This will explain why and how the barometer is used in measuring heights of mountains as well as the weight of the atmosphere.

The barometer is read at the base and at the summit and calculations made accordingly. For greater accuracy other factors, such as temperature, moisture, and even latitude, are considered in estimating elevations.

Air in its movements is like fluids governed by gravity. If the barometer at Manchester read 29.50 inches and at Concord 30 inches, there is a depression at Manchester of one half inch compared with Concord, or a wave three fourths of a mile higher or heavier at Concord than at Manchester. In such a case wind would blow from Concord to Manchester. We find then the cause of wind to be the unequal pressure of the atmosphere shown by the barometer, and this law is established, viz. : *The wind always blows towards the center of lowest barometer.* If then the barometer is lower at Chicago and so all along the line to Boston, the wind will be easterly and blow all along the line from Boston to Chicago in that direction. As the wind blows in the channel of the lowest barometer, so the storm clouds once in that channel must travel in the track.

How are clouds formed, I may be asked. We know they are composed solely of water. We do not see the process of evaporation, yet we know that water steals silently away and hides unseen in the air. We see fog rising from bodies of water sometimes in the morning. As it starts upward it is invisible, but

mixing with cold strata of air it becomes condensed and may be seen. Water boils at 212° and particles go off in steam. Some will tell us that evaporation is the dividing of the water in its smallest parts possible, when it becomes lighter than water and rises; but the belief that evaporation is the dividing of water into its gases, oxygen and hydrogen, and as hydrogen is the lightest gas known it ascends as a gas, is now generally abandoned. The molecule of water is small enough to make steam. It is estimated that any given column of the atmosphere may retain five inches and more of water in visible and invisible form at one time.

Moisture in the air in invisible form becomes visible at the dew point; that is, dew is formed in the atmosphere when the proper temperature for it is reached. Clouds then depend on temperature. The dew point on a fair day is several degrees below the general temperature of the atmosphere, and we know then the moisture is developed by a change in the temperature of the air. There is then a temperature which if developed in any room would cause the moisture to appear and envelop us all in fog, and that temperature is the dew point.

Let us apply this principle to two strata of air, charged with invisible moisture but differing in temperature. An area of atmosphere at a temperature of 60° from Concord blows down the Merrimack and in Manchester comes in contact with and becomes absorbed in an atmosphere of 80° , the temperature of the two would become equalized. The one would rise, the other fall, and in the fall of the temperature the moisture would be condensed into clouds. Hence, if we take 100 as the perfect saturation of the air, and find a per cent very near that, we know the atmosphere is so charged that very probably it will condense and fall in rain. This is one of the most important things to consider in the forecast of storms.

In the crowded assemblies in winter, if the windows are opened flakes of snow will fall into the room, though the sky be perfectly clear. It is not safe for one to sit near an open window who has not the strength to resist the effect of the moisture that would condense from the atmosphere around him. You will now understand what is meant by *dew point*.

Here we come directly to the phenomena of the

AURORA BOREALIS,

which have caused much study and investigation, but with no very satisfactory results. The phenomena flourish in extreme northern and southern regions, but sometimes they light the sky in middle latitudes with many of the forms of the spectacular scenery of their more northern shows. The sun shining on the clouds, when dissipating mists, produces the rainbow to the observer ; electricity playing upon the moisture just changing from the invisible to the visible, at the dew point, produces the phenomena of the northern lights. Two things are necessary for this display, viz., electricity and the dew-point condition of the atmosphere. Electricity is always in the atmosphere. It cannot be exhausted. If we credit those who have the charge of the dynamo-machine in rooms for lighting purposes, no marked difference is observed in the amount of electricity generated by a single dynamo-machine, or in a room full of them. The supply is constant, however much is generated there and sent off on errands of light. Hence, electricity seems to be a necessary constituent of the atmosphere. The clouds collect it in passing through the air, and again give it back to the atmosphere.

If one will watch the northern lights, he will observe at first a faint light at the north. The light will radiate from a polar center. It will soon grow dark at this center, and the lights will radiate from points in a circle around the original center. This center of darkness will increase and the circle of light will correspondingly increase until after a few hours the crown of light ascends nearly to the zenith, and clouds follow the crown at every point. We would interpret it as the result of conditions we have named, currents of atmosphere with different temperatures giving up their moisture at the dew point in such form as to collect the electricity present, and present radiations therefrom. If these conditions are extensive, a storm is sure to follow, not from the electrical display, but it is due to the clouds formed there at the dew point. I recur to an exhibition of northern lights some years ago, which I had occasion to watch. It was called a "magnetic" storm by the newspapers ; it was in summer, a still

evening, and the first part of it, I think, was cloudless. The sky was lighted finally in every part. I saw the little spectral clouds come from the invisible air like fancied ghosts lighted with electricity; again, they and the electricity would disappear, escaping with a crack; the little spectral clouds had met a warmer current and had gone back to their invisible form, and there was no material for the electricity to play upon, so it escaped back into the air again. In this exhibition I estimate these little clouds were formed within one or two hundred feet of me, and the working machinery of the lights was plainly discernible.

In July, 1886, with several parties, one a reporter of a daily newspaper, I saw the same phenomena of the northern lights, and the same conditions were present, and the explanation of the phenomena of the aurora borealis was, that as the cooler atmosphere descends and comes in contact with the warmer strata of the atmosphere, the dew point is reached and the invisible moisture which the air contains is condensed into foggy mists and becomes visible. The electricity in the atmosphere charges these mists, causing them to become luminous. We have electricity, and it is not strange or new to us. It was once supposed lightning existed only in the clouds; but now it is generated every day, and we know dynamo-electric machines within the space of a common room could generate enough to give a brilliant light to every public building in our capital city and more. It is in the clouds and is generated there, and if the quantity is more than the clouds can hold, it will escape in the form of lightning. If there are better conductors than the atmosphere, it will escape noiselessly. It selects the path of least resistance and follows it wherever it leads.

“Lightning which accompanies these storms,” says a circular issued by the late signal officer, Gen. Myer, “is the effect of the concentration upon large drops of water of the electricity previously distributed throughout the invisible vapor: it is considered as a result, not a cause of storms.”

In June, 1752, Franklin proved that lightning and electricity are identical, and when we experiment with the Leyden jar at the laboratory the same phenomena occur that are exhibited in the thunder cloud, though immensely smaller. The sparks from the

battery are a diminutive thunderbolt, and the electric light in our streets is the lightning made constant by the continuity of its production, the spark made continuous in its supply.

What is lightning, may be a pertinent question, but I cannot answer, nor can I quote the answer from the great students of the day. They can describe only its phenomena. It is a "mode of motion," some tell us. So is heat a "mode of motion." Light is a "mode of motion." In these definitions, the idea of motion only is given, but we have not yet the difference in modes of motion that explains either of the three. The definition is inadequate, but it is all we have to-day. We understand the cloud, but electricity is itself invisible except in its effects. Its touch may be fatal and we approach it with fear. Prof. Tait, a good authority, follows the conclusions of certain French savants, that as yet we know little or nothing of the origin of the manifestation of electricity. It would seem to be due to the direct influence of the sun's electricity upon the moisture of the air, or possibly to the indirect effect of the sun's heat, and this he and they regard as more satisfactory than the multifarious theories of friction, evaporation, condensation, etc. Is it not something shot out from the sun like light and heat, a force like them originating in the sun, known in its effects upon matter, though vastly different, to have the phenomena of light and heat in its work? It is one of that trinity, light, heat, electricity.

Treating electricity as a power, there are some units of measure we will study. It has units of force, quantity, velocity. The units used in the system of electro-magnetic electricity are, the *volt* as the unit of electro-motive force; the *ohm*, the unit of electrical resistance; the *ampère*, the strength of current produced through resistance; the *coulomb*, the unit of electric quantity, and the *farad*, the unit of electric capacity. These terms may seem cabalistic, but they are derived from the names of distinguished scholars and writers on electricity, — the names of Volta, Ohm, Faraday, etc.

We use horse-power as a unit of steam-power. The volt represents about the same idea in electricity as a unit of electrical force, and is a little less than the force of a cell of the Daniell Battery, — about 95 per cent of such cell.

An ohm is a unit of resistance of the current, and is equal to the resistance of 100 yards No. 8 Birmingham wire gauge, — iron telegraph wire, — i. e., the resistance or friction the wire offers to the circuit.

The ampère is the strength of current produced through a resistance of one ohm by an electro-motive force of one volt, and decomposes 1.4472 grains of water in a second of time.

The coulomb is the unit of electric quantity. The number of coulombs passing through a conductor is equal to the ampères multiplied by the number of seconds.

A farad is the unit of electric capacity. A body holding one coulomb of current, electro-motive force of one volt, has one farad of electric capacity.

A volt in power (like head of water), a farad in quantity, flowing through a telegraph wire 100 yards long, would equal the ohm or resistance (like friction in a tube of running water).

With these little units we may, to some extent, study the power and quantity of lightning. A volt would be greater or less than the quantity of the Leyden-jar spark, equal to about .95 of a Daniell cell, but for the purpose of illustration we will suppose them to be equal, the volt and the spark. If now we compute the area of the thunder clouds that pass over us frequently in summer, say three miles long and two miles wide, (not extravagant when we consider that the thunder roll continues often upwards of fifteen seconds without ceasing — in a shower August 23, 1885, I counted nineteen seconds of continued roll from one discharge), we find there would be an area of six square miles or 3,840 acres of cloud.

Dr. Faraday once showed that 6,500,000 discharges from a Leyden jar would suffice to charge a thunder cloud of thirty-five acres, and there is no authority better than his. Now one cloud of 3,840 acres fully charged would hold a hundred times as much as the one of thirty-five acres, or 700,000,000 of volts. We can have some idea of the immensity of quantity, as well as force, when we put to work 700,000,000 of Daniell's batteries.

We see how diminutive the lightning rod would be for the work of carrying off safely this immense quantity, when we consider that 100 yards of telegraph wire are necessary to the work of

one farad per second for one volt. It would require a rod large enough to stand the resistance of 700,000,000 of ohms. In hardly an instance of a shower are lightning rods equal to the duty required of them.

Does lightning have any objective point at the flash? A cloud, like the Leyden jar, can hold only a fixed quantity, and when full its sparks are seen to fly away. So a cloud overcharged bursts, the air is a bad conductor, and the lightning seeks the easiest route to the earth. So the cloud does no wrong, it aims at no object. Let loose the lightning, it wildly runs where the least opposition offers.

Is it more likely to strike in one place than another? Apply the above rule and it would seem not. The course of the lightning must conform to the path of least resistance. This is verified by the conductor. It will follow a wire thousands of miles, while in air its travel might be only rods. As there are two kinds of electricity, the positive and the negative, and as *like* repels *like* and attracts the *unlike*, two differently charged clouds may unite. It appears, then, that the union of clouds may produce lightning.

Experiments show different results in the velocity of lightning. The coast survey experiments show its velocity to be from 20,000 to 25,000 miles per second over iron wire, while some electricians have estimated it to be 194,000 miles per second, or greater than that of light. There are no settled data as to its velocity. The question is sometimes raised as to the possibility of a person struck by lightning seeing the flash. Air is a poor conductor of electricity, and it would doubtless be slower than light, so there would be a glimmer of light to the one struck, but the difference would be the small fraction of a second. As a general rule if the person sees the light of the bolt he is safe.

Are all persons liable to be struck? To say no would hardly be true, but some persons are more likely than others to feel the effects of electricity. The mother, with a child sleeping in her arms, has been killed and the infant saved. Persons in the same room, even in the same bed, are differently affected. A young girl in Manchester during a thunder shower could not control her hands; the fingers would be drawn together and her limbs suffer

the pains of cramps. Some will be sleepy, some nervously excited and unable to control their feelings. Such persons are really affected physically by electricity, by what is called *induction*, and persons are more or less influenced by every thunder cloud coming near them. If a cloud charged with positive electricity should pass over a person negative in electricity, he would feel the influence. Persons have stated that they were sensibly affected by certain thunder-showers in a manner they never experienced before, and others, who at times were affected, state they were in a measure free from the excitement. This is satisfactorily explained by the view taken here, that all are more or less affected by clouds charged with lightning, and are consequently subject to influences they cannot control, by the like or unlike form of electricity in them and in the clouds.

Lightning, then, we say, is the escape of electricity from the clouds, like electricity from the Leyden jar. The explosion is thunder. But why do we have the long peals of reverberations, seeming sometimes distant, coming near and then rolling away, finally disappearing in the distance? This is very easy to explain if we recall the fact that sound travels at the rate of 1,142 feet per second, while the discharge from the cloud may be a mile or more like chain lightning, so there would be a continuous roar until the sound from the most distant point of discharge had reached us. For example: If a cloud extending from a point two miles away from us become charged with electricity, should discharge throughout its whole length in chain lightning, we should first hear the explosion immediately over us, and then it would be followed by a continuous sound as reports along the line came to our ears traveling at the rate of 1,142 feet per second, or a mile in some five seconds, until the most distant discharge reached our ears, lighter or heavier according to the severity of the discharge and the distance of the cloud from us. This roll of thunder then is due entirely to the tardy travel of sound, while the flash of lightning is quick as light.

The flash of lightning, it is said, is the heating of the constituents of the atmosphere to incandescence. Ball lightning, often following heavy discharges, has astonished everybody, but is now generally believed to be the constituents of the shower in gas or

air solidified and heated to incandescence. M. Planté, the well-known French electrician, has been led to experiments in which a successful imitation of ball lightning has evidently been obtained. With a powerful current from secondary batteries, it is said he has produced in an air condenser, formed of two moistened pads of filter paper placed near together, a small incandescent globule, lasting some minutes and moving slowly in a curious and most erratic path. When a condenser was used in which the insulating material was ebonite, a sound was emitted like that of a toothed wheel rapidly rotated against a piece of cardboard.

On August 22, 1885, at Perry, N. Y., during a violent electric storm, lightning struck a dwelling-house; a newspaper commenting on the fact says: "A ball of fire two inches in diameter, it is said, went in through the roof and rolled over the carpet. The occupant, in his bare feet, sprang upon the ball and crushed it out. His feet were terribly burned, and he received a shock from which he did not recover in several hours. His escape from instant death is considered remarkable."

But frequently hail falls in the shower! What is hail? Hail is frozen water. The form of the hail particularly attracts our attention. The smaller, more or less globular, we call sleet. There sometimes fall irregular masses like pieces of ice frozen together, and there are round hail-stones, sometimes with several layers like an onion. In a shower on the 3d of July, 1885, the hail fell in such quantity in Sandwich, N. H., that it was used in refrigerators to make ice cream in celebrating the next day (the 4th). Prof. Loomis says: August 13, 1851, about 1 P. M., hail-stones fell weighing 18 ounces, and to the depth of 4 inches, in our state; and the same year, in India, hail fell about the size of oranges. If we examine them we find them to be ice in every form of congelation, — the pure and transparent, the hard and soft. What astonishes about it is, that in a summer day, with the thermometer 75° or more, such ice globules could form in the atmosphere. Here is the phenomenon, how shall we explain it? This fact is evident, — that somewhere in the fall of the hail it has passed through an area of air at or below the freezing point.

Through the efforts of the British Scientific Association, the

average temperature of the atmosphere, some 25,000 feet upward, was found to be as follows: For the first 5,000 feet the thermometer fell 1° for each 239 feet in a fair day, and 271 feet in a cloudy day; for 10,000 feet, it fell 1° for each 394 feet; in 15,000 feet, it fell 1° for each 490 feet in clear, and 459 in cloudy. The difference, then, between the surface and 15,000 feet high would be about 45° . So, while the temperature at the surface was 75° , it would be 30° at the elevation of 15,000 feet, a point 2° below freezing. Prof. Loomis says the average summer temperature at 18,000 feet elevation is 20° , which is 12° below freezing. The cirrus cloud lives and moves at that altitude, and even higher. Hail is found in the Alps at 16,000 feet. Now, if a stratum of that cold atmosphere should come down and mingle with the lower raining clouds, making the same below the freezing point, we would expect the rain to be frozen into ice or hail; and, again, if the raining clouds should be transferred to the higher, colder stratum, we would also expect the rain to be frozen into hail. These possibilities depend on vertical currents of air. Now, if there be two strata of clouds charged highly with moisture, one above the other, and the lower raining freely, it would necessarily create a vacuum, and cause vertical as well as lateral currents to rush in to fill and supply the vacuum, and if the upper cold currents came down, hail-stones would be the result. The hail may start from a higher elevation so cold as to freeze to itself the moisture it meets on the way in layers, or even angular pieces. The hail area of a storm in summer is comparatively small. We have, then, only to find a force capable of drawing down the upper currents of cold atmosphere and hail-stones in mid-summer, and our phenomena are explained. This occurs in whirlwinds, and we will now speak of those.

The whirlwind is the most powerful because the most destructive to life and property of all atmospheric disturbances. The name describes them, — whirling wind, with the clouds in its control. In the cyclone, or whirlwind, there is no new power, but additional force is generated. Two things are necessary, not including the prevailing wind that gives movement to the whole mass of clouds, the rotary and additional force in the wind.

This movement is limited to a small area of the storm clouds, sometimes only a few rods, or even feet. How is this great force produced? This mighty force of whirlwind and tornado must be generated out of or by the clouds, under the laws of heat and electricity.

We have now studied the various conditions and forces that are incident to the atmosphere and liable to develop there, and we will now apply them in the thunder storm, hail storm, whirlwind, or cyclone, and I will begin with the simplest formation.

We may see in a summer's morning dense fogs rising along the streams and at the base of the mountains, obscuring the hills and forests from sight which but a moment before presented themselves boldly to our view. The sudden change from clear to foggy, misty weather, is striking, and we have to suppose some new conditions have appeared to disturb the air, and we begin to think these sudden changes are the premonitions of a storm. These premonitions soon become verified by the abundance of clouds. The fog rises and collects in bunchy masses, not very high, but above the ordinary hills, and then rises higher and higher, until the mountains, previously obscured, are distinctly in view, from top to bottom, and the clouds sail majestically above them. These foggy masses have become the *cumulus*, assuming an importance sufficient to merit a name, by their significant importance in the disturbance we now expect, and which has already begun.

Let us now watch them. If they remain isolated and sail in the air alone, they will soon pass out of sight or fall back into the air again in invisible moisture. They do not act in that way. They are growing larger, darker, and they approach each other and unite into masses. Then follow these conditions: The wind ceases, the smoke from the chimney ascends perpendicularly, the clouds seem to stop in mid-heavens and hang motionless above us; but the stillness is momentary, for they soon begin, as with some hidden impulse, to move around a common center. They grow thicker, larger, darker, and they become massed together and fill the whole sky. Some have coppery edges, while others shine like silver, and they are drawn together and become so black that their shadows cover the land,

and the sky is completely hidden from view. They soon become electrified, uniting into closer and denser masses than before. We see then a flash ; it is noiseless, but shows the grim form of the shower ready to burst upon us. The harmless fog ascending forms the cumulus, and the cumulus is transformed to the nimbus. We look for the cause of these. There is a slight change in the thermometer, the barometer, and the hygrometer, showing change in the temperature, the weight and moisture of the atmosphere. From experience we know what to expect. We examine the hygrometer and find the humidity is increasing, and that the dew point and temperature are very near the same degree. The clouds now move round a common vortex, and anon there is a murmur of the wind, now a flash, followed by immediate thunder, which announces the shower, and it rains. The clouds now fall into the track of the wind and move with it. So far it is a simple shower ; but there accompanies the shower lightning, and there are also hail and the whirlwind, for they, too, are conditions of our summer shower. There must be wind (we have already the other factors), and if a vacuum of one fifteenth of the atmosphere is obtained we can see how the wind is to be produced. To understand better, let us go back to a few first principles.

1. Water converted into steam expands to nearly 1,700 times its volume, and this expansion requires heat.

2. Steam or vapor in condensing to water gives back that heat.

To make a figure, water borrows heat and with it swells to vapor, and in paying back the borrowed heat it dwindles down to water again.

Clouds are condensed vapor, and water changed to clouds does not expand so much. It is estimated the atmosphere will hold, in various forms, five inches of water. Communicate heat, 212 degrees, to water, and it is converted into steam. The different densities of clouds, even in the same shower, are such that an estimate only can be made of the expansion of water to the cloud form. It may or may not equal 1,000 times its bulk.

These principles of the expansion of water and condensation of vapor being recognized, we will apply them to a given cloud, say of 17,000 cubic feet in a space of 17,000 cubic feet of atmos-

phere. It is so dense, so heavy with moisture, that it falls to the ground of its own weight, and is in the condition we left it after the hail storm ceased to interest us. We have wind, rain, and lightning now playing their several parts in the storm. The rain is heavy, and the condensation amounts almost to a collapse of the cloud, and it shrinks to 1,700 cubic feet, one tenth of its bulk; at the same time it is incapacitated, in consequence of its reduction, from holding the electricity it had gathered, and the lightning bursts from every part of the shrinking cloud, and heats the gases and the air to the highest degree. Only one tenth of the 17,000 cubic feet of the cloud remains, and now we discover the vacuum we were expecting.

We examine the barometer and find it has fallen from 30° to 28° ; one fifteenth of the whole atmosphere is eliminated. The force we find to be 144 pounds to the foot, and a velocity of 170 miles per hour.

This is again announced to us in the falling torrents of rain, the terrific flashes of lightning, and the thunder muffled by rain and wind which now assumes control of the storm. A partial vacuum of the air to the extent of one fifteenth summons the forces of nature to its aid, and the whirlwind is the only relief it gives; but it is sufficiently potent. The old cloud of 17,000 feet destroyed, others rush to fill its place, while the air is reduced in density, and, becoming rarefied still more by the intense heat of the lightning, rises with the velocity of the wind a distance above. A whirl is now formed around the center of rarest air, the general current of the wind first giving the direction of motion, and as the new clouds fall into its vertex they are stripped of their moisture and electricity, and the rarefied air that held such is sent whirling above, to be followed by other clouds in their turn, and the work of destruction and repletion becomes continuous. It moves along the ground, sweeping trees and houses, and everything in its course must yield to its tremendous power; a power we can only in part estimate in figures, because the force of electricity cannot be measured, and it will continue till this partial vacuum, this depression, be filled, but never long. If this whirlwind should extend to a body of water it would raise water-spouts. Such are common in hail storms. In elevated places it

assumes a form of whirl about a horizontal axis, showing the upward and downward motion of the air.

We have now seen how the fog and moisture of the morning are formed into clouds, and clouds into showers; how lightning accompanies the shower, that the rain may be changed to hail, and that the shower of the summer may be converted into the cyclone, all by the action of forces necessary and present in the atmosphere at all times and in all places.

PROTECTION FROM LIGHTNING.

In 1885 the spires of three churches in Manchester, one in Candia, and one at York, Me., were struck by lightning and destroyed or greatly damaged. On the 31st of July a gentleman saw a bolt descend over Manchester and divide in three parts, and at the same discharge the Franklin-street church and two private houses were also struck. This led to a correspondence with Prof. William M. Davis, of Harvard College, secretary of the New England Meteorological Society, and Prof. Alexander McAdie, also of Harvard College, and an electrician of the United States Signal Department. Prof. McAdie writes: "Prof. Upton has asked me to write you with regard to your letter to him about the material and arrangement of spires that shall be proof against lightning. The iron spire is the very best protection against lightning, always provided the metal does not stop half way down, and even then if it is connected with damp earth by an iron rod one inch in diameter, or a copper rod one half inch in diameter, there is perfect safety. I have been called upon to inspect a great many lightning rods, and in about nine cases out of ten the connections were defective. Memorial Hall at Cambridge, Mass., has a vast amount of metal in the spire. It is two hundred feet high, and this stops half way down, but the connections with the ground are ample and kept in good condition, and there is no thought of danger."

Prof. Davis responds as follows, referring to English reports: "The most essential matters in the construction of a lightning-rod are its continuity, its immediate connection with the building, especially with the building and metallic objects in its upper part, but not with the gas pipes, and, most of all, its exten-

sion downward into the ground so as to meet permanently with wet earth. The rod is best of copper, weighing not less than six ounces a foot, made in the form of a flat tape or a rope of stout wires twisted together. If not a continuous piece, its joints should be cleared and well soldered. The upper end should not be very sharply pointed, but about a foot from the top attach a copper ring, and from the ring let three or four sharp copper points about six inches long incline outward from the rod. The top and points should be plated to prevent rusting. The rod should be fastened directly to the building by metallic holdfasts. Glass insulators must not be allowed. The church bells need not be connected. The rod should be taken down the rainiest side of the building. It should have no abrupt turn. All ironwork on the roof should be connected with the rod. If the ironwork is in separate parts, every part should be connected by metallic rods with soldered joints. The rods should be well grounded in wet earth. It may be into the water of a good well, or be soldered to iron gas or water pipes under ground, or it may connect with a sheet of copper three feet square and one sixteenth of an inch thick, buried in permanently wet earth and surrounded by cinders or coke which hold moisture. The best rod is perfectly useless if it is in dry ground."

Upon the foregoing instructions we may say, wires or rods so arranged insure safety to property and life. My experience is, that three continuous copper strands, perhaps one fourth inch in diameter, twisted sufficiently to be firmly connected, make not only the best but the cheapest rod for a long time, that can be constructed. Measure the height of the building, allowing a few feet above and then under ground to some brook or pond never dry, or moist earth, and there is protection. This is not expensive, perhaps twenty to thirty dollars for each hundred feet, according to the weight of the copper wire. Far better and safer to have no rod than to have an imperfect one. The whole worth of the rod is in the manner of putting it on a building. These instructions were followed in connecting the new spire of the Franklin-street church by three copper strands twisted with the moist ground.

FOREIGN FRUITS.

Our fruit-growers are taking an unusual interest in foreign varieties, and especially those adapted to our northern latitudes. Our Canadian brothers have tested Russian varieties, often with success, and efforts in the same direction have been made in our own state.

In a former volume we presented liberal papers on Russian apples, from the reports of Messrs. Gibb, of Abbotsford, P. Q., and Prof. Budd, of the Iowa Agricultural College, who visited Russia and thoroughly studied the nature of many of the fruits of that northern country.

We again venture, without asking permission of the author, to copy his report on the "Fruits of Wurtemberg." He gives not only his own opinion, but also those of the best pomologists.

THE HARDY FRUITS IN WURTEMBERG.

BY CHARLES GIBB, ABBOTSFORD, P. Q.*

In Europe, pomology is studied as a science, and men attend schools of pomology just as they attend schools of law or medicine in this country. When Prof. Budd and myself, in 1882, were on our way to Russia to look up the fruits of the cold climates of the old world, we staid at several of the pomological schools, noted their opinions of their best fruits, and, as far as we could, formed our own. The late venerable Dr. Lucas, who died in 1882, made fruits the study of his life. He gathered at his

* From the Report of the Montreal Horticultural Society.

pomological school at Reutlingen all the good varieties he could get hold of, tested them in his grounds, and recorded his opinion on them. The two winters preceding our visit had been unusually severe and the Wurtemberg orchards were seriously injured. What varieties had stood this test was the question we specially asked. Mr. Fritz Lucas had grown up surrounded by rare opportunities, and such opinions must help to guide experimental work into profitable channels.

APPLES.

LATE WINTER VARIETIES.

Baumann's Reinette. Mr. Fritz Lucas describes this as a large and very beautiful and good fruit, in season from winter until the following summer. The tree is productive and the fruit valuable for the market. Prof. Dr. Rudolf Stoll, of the pomological school at Klosterneuburg, near Vienna, in his beautifully illustrated work, the "Österreichisch-Ungarische Pomologie," describes this fruit, a medium-sized, flattish, conical apple, entirely covered with dark carmine, in which some darker stripes may be noticed. The flesh is yellowish white, fine in grain, and moderately juicy, with a very agreeable wine-like sugar flavor. The fruit ripens in December and keeps until mid-winter, and for market and home use is a most valuable kind. The tree thrives well on dry soils and in bleak exposures, and, moreover, bears early and abundantly. According to the "Illustriertes Handbuch" by Lucas & Oberdieck, this variety should not be absent from any garden.

Mr. W. Lauche, Royal Garden Inspector of Berlin, in the "Deutsche Pomologie," a work which gives full descriptions and beautiful colored plates of fifty of the best varieties of apples for Germany, describes this apple. It was grown by Van Mons, and named in honor of Napoleon Baumann, proprietor of the nursery in Bollweiler in Alsatia. At the seventh assembly of German pomologists at Trier in 1874, it was named among the fifty best varieties, and at Potsdam, in 1877, included in the list of ten best varieties for cordon training. It deserves to be in general cultivation for its productiveness, beauty, and quality. The flesh is yellowish white, fine-grained, very juicy, and of a peculiar

vinous acid and spicy flavor, and is useful both for table and for cooking. It is in season in December and keeps till March. The tree is vigorous in growth, but not large. It is uncommonly fruitful, and flourishes in any good soil, and does not lack hardiness.

Boikenapfel. Mr. Lucas says that this is a remarkably fine fruit for kitchen or for table. The tree is a young and abundant bearer and bears well in unfavorable places. Mr. Lauche says that this is a common apple tree in the neighborhood of Bremen, where it has been highly prized for a long time. It is said to have been named *Boiken*, after a former official. Oberdieck called attention to it at Berlin in 1860, but it was for the first time included in the fifty best kinds at the meeting at Trier. In Germany it is not widely distributed as yet, but deserves to be. The flesh is snowy white, fine-grained, juicy, of an agreeable spicy, vinous, acid flavor. It ripens in the cellar in January and keeps till summer. A very good cooking apple and in summer an agreeable table fruit. It thrives on all kinds of soil and on every exposure. The tree is very healthy. It blossoms very late and bears well.

Dr. Stoll also gives a description and a beautiful plate to this apple. He describes it as a clear yellow in color, with more or less blood-red on the sunny side. It seems to be a fruit of rather large size. Dr. Stoll's account of it agrees with that of Mr. Lauche, and says that if properly stored it will keep till the following summer. For the market, it is difficult to find a "better constructed" apple, and its quality and its long-keeping properties impart to it extraordinary value. The tree bears almost every year. It is not sensitive to bleak exposures, and grows well even in rather dry soils.

Bretagner Reinette. Mr. Lucas says that this is a very beautiful and delicate apple, a red reinette of large size and unusually fruitful. It ripens in November and keeps till March.

Danziger Kantapfel. Mr. Lucas mentions this as an eminently large, dark red apple for table and kitchen use, a good bearer, and in season from fall till winter. Dr. Stoll describes it as an apple "built on the Calville principle," with characteristic ridges running from calyx to stem. Flesh very fine-grained, full of

juice, and, as Oberdieck says, it has a delicately flavored, refined acid sugar flavor. It ripens about the middle of October and keeps till February. When fully ripe it is a very fine table apple and one of the best for cooking, and Lucas recommends it strongly for fruit wine. Although this delicate fruit bruises readily, these bruises are not apt to cause decay. The tree thrives well in bleak situations and in any good soil, and, when well grown, is very fruitful.

Mr. Lauche says that the origin of this apple is not known. It has been distributed for a long time under most diverse names in Holland and Germany, and was recommended for general cultivation at the first meeting of German Pomologists at Naumburg. Mr. Lauche's opinion agrees pretty much with that of Dr. Stoll.

Grauer Kurzstiel (Carbanter). The Gray Short-stem, Mr. Lucas says, is a much-prized apple, either for table or cider, and that the tree is very hardy and a good bearer. Season, winter. Dr. Stoll gives this as a synonym of the *Königlicher Kurzstiel* (or "Court pendu rouge"), which is pictured and described both by Dr. Stoll and Mr. Lauche as a medium-sized, flattish, attractive reddish yellow apple "of noble, peculiar, spicy, Reinette flavor." It is of fine quality and keeps till March. Mr. Lauche says it was described in 1613, and has been very widely distributed.

Grosse Casseler-Reinette. Mr. Lucas says that this is a large, beautiful gold-reinette. This tree is unusually productive. The fruit is very fine for table and for cider, and keeps for a year. Messrs. Simon-Louis describe it as rather large, roundish, stained and striped with crimson on dull golden ground; flesh fine-grained, firm, sugary, and of very agreeable flavor; of first quality for table or cooking. Season, during winter and spring. The tree is vigorous, bears early, and is very fruitful. A variety universally appreciated.

Königin Olga-apfel (Queen Olga). Mr. Lucas says this is a magnificent and a very good and fruitful Borsdorf-Reinette from the Ukraine. The tree is a very strong grower, and hardy, and very much to be recommended.

Luxemburger Reinette. Mr. Lucas says is a large, beautiful, and good yellowish green Rambour-Reinette. Tree very hardy, and fruitful. Season from winter till the following summer.

Ælkofer Pepping. According to Mr. Lucas, a small, delicate, very beautiful winter apple. Tree of medium size and very hardy and very fruitful. Messrs. Simon-Louis in their "Guide Pratique" describe the *Pepin d'Ælkofen* as a fruit like the *Pepin d'or*, but a little larger. Flesh crisp, very juicy, of first quality, and ripens towards the end of winter and spring. Tree a slow grower, but very productive. I may add that this "*Pepin d'or*" is the *Pepin d'or de Bull*, that is "John Bull's Golden Pippin."

Purpurrother Cusinot. Mr. Lucas says, very valuable and a good keeper; tree strong, durable, and very fruitful. Mr. Lauche says that this is of German origin, and that it is distributed under a great many names, especially in Brandenburg and Hanover. Oberdieck drew attention to it as an unusually fruitful cooking apple at Gorlitz, but it was for the first time included in the fifty best kinds at the Seventh Assembly of German Pomologists at Trier. The flesh is yellowish white, often stained with red, fine-grained, juicy, and of a vinous acid sugar flavor. An extra good cooking apple, also esteemed as a dessert fruit. It begins to ripen in the cellar in December, and keeps till summer. The tree grows rapidly, it is unusually fruitful, flourishes in every kind of soil, and can be recommended for bleak exposures.

Dr. Stoll indorses its good qualities and speaks of it as a fruit for home use of the highest usefulness. Its great productiveness, bearing nearly every year, makes it a friend of inestimable worth to the countryman. The fruit, although not first-class for the table, is first-class as a market apple and for drying and cider. The fruit is sent every year into the markets of Prague, Breslau, Berlin, etc., by thousands of cwts. The tree is not sensitive to unfavorable climatic influences. As pictured by Dr. Stoll and by Mr. Lauche this is an unusually attractive dark red apple, and there seems to be no difference of opinion as to its general useful qualities.

Rother Eiserapfel. Mr. Lucas says a good medium-sized apple that keeps for one year. The tree is a strong grower, and very hardy and fruitful. Mr. Lauche states that this is of German origin, and that as early as the sixteenth century it was extensively grown around Bamberg and Nuremberg, and that it is widely distributed through Germany. At the Second Assembly

of German Pomologists at Gotha in 1857, it was recommended for general cultivation. The fruit has a yellow ground mostly covered with dull red, and in flavor is a somewhat sweetish vinous acid, first-rate for cooking, and also "agreeable for raw enjoyment." It begins to ripen in January, and, when properly stored, keeps through the entire summer, and hardly ever spoils. It bears very heavily, flourishes in bleak exposures and in every kind of soil, provided it be not too dry.

Dr. Stoll also pictures and describes this fruit, and says that it ripens towards Christmas, and keeps till harvest, but is rather mealy then. On account of its long keeping it is a treasure to apple-growers, but it is not desirable as a table fruit until all other kinds have become scarce. It should only be planted in damp soils, and then is one of the best commercial apples. Dr. Stoll says this is the apple described by Dr. Hogg in the "British Pomology" and in Downing's "American Pomology" as "Court pendu plat." I will add that an apple under this name has done well on the College Grounds at Ames, Iowa.

Rother Winter Himbeerapfel. The Red Winter Raspberry is mentioned by Mr. Lucas as a noble large red Calville. The tree is of medium size, very fruitful, and hardy in bleak exposures. Messrs. Simon-Louis give this as a synonym of *Calville Rouge d'Hiver*, a fruit of rather large size, variable in form and ribbed, and almost entirely covered with red of one shade. Flesh stained with red, tender, with a perfume like the strawberry. Of first quality for table or kitchen. Season, winter. Tree moderately productive and vigorous, but does not do well in clayey or moist soils. Dr. Stoll also praises the Calville Rouge d'Hiver in very high terms, and says it is specially suited to connoisseurs of fine dessert fruit.

Weisser Winter Taffetapfel. Mr. Lucas notes this as a beautiful small apple, pleasantly acid, very fruitful, and in season from fall till winter. Dr. Stoll speaks of the beautiful wax-like skin of this apple, its fine quality, and the high price it commands in the Vienna market, and its value for cider, drying, and preserves. It begins to lose its fine table qualities towards the beginning of the new year. This apple, it would seem, has neither the size nor deep color nor keeping qualities to commend it for special trial in this country.

Zwiebel-Borsdorfer. Mr. Lucas says a good apple for table or cider. Tree of middle size, hardy, and fruitful. Season from November till February. Messrs. Simon-Louis state this to be a synonym of the *Borsdorf-Ognon*. Fruit, they say, small, the shape of an onion, a pale, clear, brilliant yellow. Flesh very fine, firm, mild, very sugary, and of very fine flavor, excellent. It ripens during winter. A singular but beautiful fruit.

PEARS.

The question we asked about pears was : What are your *hardiest* kinds, those that have stood the most trying winters without regard to quality ? The answer was given in the following list of nine varieties, the first four of which are dessert fruits, and the remaining five of use for cooking and cider only.

Madame Favre. Mr. Lucas says of this, a large, roundish beautiful, and fine fruit. Tree very stocky in growth and very fruitful. Messrs. Simon-Louis describe it as a rather large, rounded, and ridged fruit ; greenish yellow, stained with grayish red and washed with vermilion. Flesh very fine, very juicy, very sugary, and deliciously perfumed ; of first quality. Ripens at the beginning of September. Tree vigorous and productive.

Triumph von Jodoigne. Mr. Lucas says a very large pear, clouded red. Season, winter. The tree is very vigorous in growth, and is suited to moist soils. Messrs. Simon-Louis describe this in their list of "first series of merit." Fruit large or very large ; pale greenish yellow, sometimes washed with red, half buttery, juicy, sugary, and of agreeable perfume. Season, end of autumn. A very beautiful fruit of variable quality.

Windsorbirn. Mr. Lucas says a really good, rich, juicy, summer pear. The tree makes vigorous growth, and bears young and abundantly. Dr. Robert Hogg in the "Fruit Manual" says that the Windsor (perhaps the above) is undoubtedly of foreign origin, and that it is shipped in quantity to London from Oporto, and is a summer pear of fine quality.

Ulmer Butterbirn. Mr. Lucas says a delicate, medium-sized, egg-shaped, very beautiful pear. The tree is a handsome grower, hardy, and abundant bearer. Season, October. Messrs. Simon-

Louis state that they received this from Württemberg. Fruit medium in size, egg-shaped, very pretty, of first quality. Season, October. Tree vigorous, hardy, and very fruitful.

HARDIEST PEARS FOR COOKING AND CIDER.

Betzelsbirn. Mr. Lucas says a very good pear for cooking and cider and preserves, nearly medium in size. Tree a good grower and fruitful. Season, November and December. Messrs. Simon-Louis describe it as a roundish, yellow fruit of medium size; for cooking and for cider. In season from January till April. Tree large and very hardy.

Grosser Katzenkopf. Mr. Lucas says a very large, roundish, rusty, spotted cooking pear. Tree very vigorous, hardy, and very productive. Season, January to February. Mr. Lauche says that this pear had its origin in Germany, and that it can be traced back to the sixteenth century. About 1590 it was propagated in the Bamberg nursery schools, and was brought by local dealers along with other varieties into Saxony, Thuringia, Hanover, and Holland. Thence it was without doubt brought to Cadillac, whence it received its name. At the First Assembly of German Pomologists, in 1853, at Naumburg, it was recommended as a commercial fruit for general cultivation. Dr. Stoll says that this fruit is often of enormous size; flesh firm, very coarsely granular, slightly astringent, and without sweetness or aroma, but not bad after all, though sometimes absolutely unenjoyable. However, in 1881, apart from its beety character of flesh, it was on the whole agreeable. Tree vigorous, very productive, and seems little susceptible to soil and climate.

Grosse Rommelter. Mr. Lucas says a medium-sized, round, green fruit, good for cider. Tree vigorous, and an unusually heavy bearer, and thrives almost anywhere; season, October. Messrs. Simon-Louis say fruit of medium size, round, green; of first quality for cider; season October. Tree very vigorous, of extraordinary fruitfulness, and succeeds everywhere.

Ochsenherzbirn. Mr. Lucas says a very large and beautiful cooking pear. Tree large, very stocky in growth, and very fruitful in rich soils; season, October and November. Messrs.

Simon-Louis describe this, under the name of *Cœur-de-Bœuf*, as a very large pyriform pear, largely washed over with dull red. Season, autumn ; use, cooking. Tree large, vigorous, and very fruitful.

Weiler' sche Mostbirn. Mr. Lucas says a small greenish-gray, roundish pear, very bitter, but up to the present time the best of all known pears for cider. The tree is an abundant bearer, is a vigorous grower, very hardy, and thrives almost anywhere. Season, October.

PLUMS.

The plums of Western Europe as a rule do not give good satisfaction in our climate. They do sometimes bear heavy crops, but not regularly, and the trees are not long-lived. The prune plums, as a class, are noted in Western Europe as hardier than the ordinary plums, and in Eastern Europe, in the cold climates of Moscow and Kazan, the plums grown are mostly of the prune type. In Europe these types are recognized, and catalogues head their lists, "Pflaumen und Zwetschen," and men plant out orchards of Pflaumen or Zwetschen, just as in California they set out their acres to raisins or grapes. I shall describe them in alphabetical order.

Esslinger Fruhwetsche. Mr. Lucas says a medium-sized fruit of remarkable beauty. The earliest and best of prunes. Tree exceedingly fruitful and very highly recommended.

Frankfurter Pfirsich-Zwetsche. Mr. Lucas says a remarkably beautiful prune for dessert. Tree very fruitful.

Fruhe Reineclaude. Mr. Lucas says a beautiful fruit, very similar to the Grosse Reineclaude, but ripens fourteen days earlier. Very productive. Season, middle of August. Messrs. Simon-Louis state this to be a synonym of the *Reineclaude Davion*, which they describe as a medium-sized, roundish fruit, mostly rose-violet in color, and of first quality. Season, end of July. Tree a moderate grower, a young and abundant bearer.

Graf Althanns Reineclaude. Mr. Lucas says a specially beautiful, clear-red plum. Extra good and very fruitful, a new variety ; ripens beginning of September. Messrs. Simon-Louis speak in high praise of this variety. It originated in Bohemia, and is as yet rare. It is of the highest order, according to the

reports we have of it, and its varied good qualities unite in declaring it without an equal among table plums. On account of the firmness of the skin and flesh it is specially fit for shipment.

Grosse Reineclaude. Mr. Lucas says the most prized and the best kind of plum. Very valuable for table or cooking. Season, end of August and beginning of September. Messrs. Simon-Louis state this to be a synonym of the well-known *Reineclaude*, which they say is, of all plums, the finest in quality, but variable as to yield and vigor of tree.

Italienische Zwetsche. Mr. Lucas says a very large and a very fine plum for the table or for drying, in season from the middle to the last of September. The tree prefers rich, moist soil. Messrs. Simon-Louis mention it as a precious variety for favorable localities, and not suited to cold soils.

Kirk. Mr. Lucas says a very large and a very good dark red plum, in season during the first half of September. Tree uncommonly fruitful. Messrs. Simon-Louis speak well of this variety. They say, fruit large, violet-black, juicy, very sugary, and perfumed; ripens the end of August and beginning of September; a fine and excellent plum. Tree vigorous, hardy, and fruitful. Dr. Stoll also describes and pictures this plum, and says fruit large to very large, holds well on to the stock; dark violet, covered with light blue bloom; flesh firm, overflowing with juice, sugary sweet, with a delicate, aromatic flavor; a magnificent table and market fruit, which ripens during first ten days of September. Tree vigorous, very fruitful, and not sensitive to soil and climate.

Montfort Pflaume. Mr. Lucas says a large, blue-black, roundish-oval plum, very delicate. Tree very fruitful; season from middle to end of August. This is indorsed by Messrs. Simon-Louis.

Spate Muscateller Pflaume. Mr. Lucas says a large, oblong, bluish-black plum of fine quality. The tree is very productive; season, middle of September. It is described much in the same way by Messrs. Simon-Louis.

Schone von Lowen (Bellede Louvain). Mr. Lucas says a very large and beautiful reddish-blue plum; egg-shaped. Tree very vigorous in growth. Season, September 1. Messrs.

Simon-Louis state it to be of pretty good quality for the table and first-rate for cooking. It recommends itself on account of its beauty and its tendency to hold on firmly to the tree.

River's Fruhpflaume. Mr. Lucas says a very early and good and medium-sized plum. Tree very hardy and fruitful. In season till the end of July. Messrs. Simon-Louis say fruit small, almost round, reddish-black; fine, juicy, sugary, and agreeably perfumed. Ripens the middle of July. Tree vigorous when young, but comes early into bearing, and remains small. The best of the very early plums.

Reineclaude von Quillins. Mr. Lucas says a large, roundish, yellow, very good and beautiful fruit, as large as the Grosse Reineclaude and just as fine. Season, middle of August.

Wangenheims Fruhzwetsche. Mr. Lucas says a medium-sized, oval, dark violet prune. Tree very stocky in growth, hardy and very fruitful. Season, end of August and beginning of September. Messrs. Simon-Louis mention the vigor, early bearing, hardiness, and fruitfulness of this tree, and add that it is a variety of the common prune.

CHERRIES.

The cherry has been carefully classified by European authorities. Dr. Stoll divides them into ten groups; the Pomological Institute at Troja, in Bohemia, into nine; and Dr. Hogg, of London, into eight groups. The Geans (*guignes*) and Bigarreaus I shall not note, as they are not hardy here. The Dukes and Morellos are divided by these three authorities into the following four groups: —

I. — *Sussweichseln* (Griottes douces, or Black Dukes). Acid cherries with dark skin and untinted juice, trees and foliage large, and resembling sweet cherries, such as Belle de Chatenay, Archduke, May Duke, etc.

II. — *Glaskirschen* (Cerises transparentes, or Red Dukes). Acid cherries with clear skin, untinted flesh, and trees and foliage resembling sweet cherries, such as Reine Hortense, Belle de Choisy, Transparente d'Espagne, etc.

III. — *Weichseln* (Griottes noirs or Black Morellos). Acid cherries with dark skin and tinted juice, leaves small and

trees spindly, like that of the acid cherry, such as Ostheim, Brüssler braune, Double natte, Griotte du nord, Vladimir (of Russia), etc.

IV. — *Amarellen* (Amarells or Griottes claires, Red Morellos, or Kentish). Acid cherries with clear skin and untinted juices, and trees like Group III, such as Grosser Gobet, Schatten amarel, Kentish, Flemish, etc.

This grouping is very clear, and yet some varieties may be difficult to classify; *e. g.*, the Kleparovka, or Griotte de Kleparov, is classed by the Troja Pomological School as a *Süssweichsel*, or *Black Duke*, and by Dr. Hogg as a *Black Morello*. Some apply the term *Griotte* to all Dukes and Morellos, and others only to Group III, the Black Morellos. This is the group of greatest promise of value to us, and yet I shall be surprised if we do not find some of the Dukes valuable as well.

Dr. Stoll remarks that cherry-growing does not pay, often it hardly pays for the picking. This, however, is because they are often planted in soils that will produce nothing else. Yet to be profitable they should be planted in such quantity as to establish a business. Would that cherries here were so plentiful as to be hardly worth picking. I have already shown that in climates colder than our own they are the food of the peasant. Then why not here?

Doppelte von der Natte (Double Natte). Mr. Lucas says a very good Weichsel, which ripens the beginning of July. Messrs. Simon-Louis describe it as a fruit of medium size, almost round, brownish black; flesh soft, with a certain acidulated flavor, very agreeable to the taste of some people. Ripe, middle of July. A variety of Griotte.

Grosser Gobet (Kurzstielige von Montmorency, or Short-stem of Montmorency). Mr. Lucas says a very large and beautiful glass cherry. Unusually fruitful, and good for table or cooking. Dr. Stoll pictures and describes this fruit as large or very large, flattened at each end, with a deep furrow on one side, dark red, fully transparent; flesh, not firm, juicy, acid, and bitter, but, when fully ripe, milder. It ripens during the fourth or fifth week of the cherry season. As a market fruit, valuable on account of its size and its short stalk. Its cultivation is highly recommended,

but only on favorable conditions of soil. In dry or poor soil the is quite unfruitful. Messrs. Simon-Louis speak of it as a fruit tree variable in quality and the tree not a good bearer.

Grosse Lange Lothkirsche (Doppelte Schattenmorelle). Mr. Lucas says a very large, often roundish oval, blackish red, beautiful cherry for preserving. Messrs. Simon-Louis describe this under the name of *Griotte du nord*; a rather large, roundish fruit, with long stalk; flesh, a little firm, dark purple, juicy, vinous, acidulated; ripens the end of July. Tree, very fruitful, and may be grown in any form, but its true place is as an espalier, when the fruit remains on late into autumn.

Königin Hortensia (Reine Hortense). This has been long known in this country; a fruit of fine quality, but the tree not as hardy as the Griottes or Morellos.

Ostheimer Weichsel (Ostheim). Mr. Lucas says a very fine, large, dark red cherry, for table or preserving. Messrs. Simon-Louis say fruit of medium size, round, purplish black; flesh tender, very juicy, of first quality when fully ripe. Season, throughout July. Tree small and of extraordinary fruitfulness.

This Ostheim cherry I have already described at length in my report on Russian fruits, in the society's eighth report, and I may add that it and other German cherries of its type are, so far, doing very well with me at Abbotsford.

Rothe Maikirsche (Anglaise native). Mr. Lucas says a medium-sized, roundish, very good and fruitful, sweet Weichsel. According to Messrs. Simon-Louis, this is a synonym of the *May Duke*.

In conclusion let us remember that the winter temperature of Reutlingen is 11° milder than Toronto; not a Quebec climate by any means; yet, on the other hand, the orchards of Würtemberg run up the sides of the mountains into bleak exposures, where the climate is very unlike the sheltered valleys below. It is, therefore, probable that these notes have their uses for this climate as well as for those who live farther south.

THREE POINTS IN AGRICULTURE.

BY F. F. FISK, OF WEBSTER.

FOR an aid in discussing agriculture, it may be divided into physical, mechanical, and financial. In the consideration of the subject, the natural order is reversed, and the last is made first, viz., the financial, and the question, Will it pay is ever first. That question is as old as commerce, and as new as the last issue of an agricultural journal, or the last meeting of farmers. It was raised when the first proposal was made to exchange one product of earth for some other product. The conditions affecting a solution of that question were then very few, and all within the cognizance of both parties.

From that time, the causes affecting the question have multiplied, until it is no longer possible to answer the question, Will it pay, for seed time and harvest are continuous, the accidents of the season cannot be anticipated. The action of transportation companies, the convulsions in the business of the world, through labor strikes and fashion, all, all combine to make the profits of agricultural labor uncertain. Yet the discussion of Will it pay, still goes on, and not without its use. Taken in a general sense, the question could never be raised, for every advancement in society, socially, morally, and intellectually, rests upon agriculture as a foundation. The question is always personal. Will it pay for the individual to engage in some particular branch of agriculture? The question must always refer to some specialty, or at most, a combination of but a few items in the list of agricultural pursuits.

Though it is utterly impossible to take into consideration all

modifying influences, if the discussion shows the relation of the influences discussed to the particular branch in which we are interested, we go from the discussion with broader views and less of that feeling of isolation which the boundaries of our little farms have drawn around us in the busy season.

The mechanical division of agriculture is older than the question, Will it pay? Before there were products to exchange, methods of obtaining those products had to be devised. We talk of "virgin soil," and easily go back in our imagination to the time when men had but to tickle the earth to make it yield a rich harvest. We see too, through that same medium, a farmer, using as a cane the straight stick with which he has been tilling the earth, met ere he could reach his home by the agent of "The Crooked Stick Co.," and can hear the arguments as they flowed like oil from his tongue, as he proclaimed the advantages of his crooked stick over the straight.

A few days later the agent of the Double-crook, Back-action Stick puts in his appearance. From that time to this, invention has been sleepless, methods have multiplied like bubbles in a boiling caldron, and like those bubbles, many have burst ere we have had time to examine them. How to do it is as difficult to answer as Will it pay? Yet we are continually asking, and men are as ready with an answer as we with our question. The forms such discussion takes in the trials of tools are good educators, giving us practical object lessons in the mechanical arts.

The physical division of agriculture, often the last to be considered, is of the first importance. Older than the question, Will it pay, older than the question, How to procure the products of the earth; for when man was compelled to till the earth, the first question was, Where? Had there been no variation in the physical character of the earth, there would have been no choice of localities. Had there been no difference in soil, or climate, or moisture, there would have been less to build up commerce. Without supposing any of the various causes which might have led men to study the relation of the physical character of the earth to agriculture in the earlier ages, we find the red men of New England planting their corn upon the banks of streams, because the fogs that would cover their fields in consequence of

their proximity to water would protect their crop from frost. Later we find the white men occupying those same banks, with the same immunity from frost ; and when the river banks would no longer afford room for the settlers, we find them crossing the intermediate plains and building their habitations upon the hills, or even well up on the mountain sides. Evidences of these old homesteads are still to be seen in the foundations of the buildings and the stone fences that surrounded them. They sought the hills, leaving the valleys uncleared, as the local names would show, such as "Dark Hollow," where there is nothing but the huge stumps to indicate any cause for the name ; but the tall pines that once stood there might have made it comparatively dark, even in midday. Those early white inhabitants, having no west from which to obtain their bread and meat, were under the necessity of choosing for their homes such places as were fitted by nature to give them food and clothing.

On those elevations they were as secure from frost as their neighbors upon the river bank. Before the outer world was opened to them, and they were obliged to depend upon their own labor for both food and clothing, they studied well the character of soil, the climatic influence of elevation and exposure to sunlight : they sought for soil and location suited to the crop necessary to their comfortable existence. By that knowledge they were enabled without the aid of commerce, save in a very limited extent, to live in a manner that guaranteed progress in wealth and refinement. Since the opening of the grain fields of the West, we have been the willing subjects of accidents. The harnessed steam is no more difficult to restrain than the American people. Railroads opened a rich country, agriculturally, and men hastened to reap the harvests so easily won. The railroads emptied those stores into the laps of New England farmers, who began to feel that the necessity of climbing high hills to raise corn no longer existed. The old houses upon the mountain sides were abandoned. The adjacent fields no longer have such rich burdens of grain and flax. The luxuriant pastures were given to dry stock, and the dairy cow was there no more. The farmers of New England became subject to the caprices of transportation companies, the avarice of speculators, and the accidents of

seasons. It was the inventive genius of men that made this possible. By making themselves familiar with natural laws, they learned to harness the steam and to send the lightning upon errands. They combined the mechanical powers in the form of tools and machinery, which gave to one man the power of many. The manufacturers of tools and machinery and their agents are expert teachers, who, without price, offer to instruct us in all the skillful combinations they have produced ; and they are men who have brought to their business talents of no mean order, seeking by the aid of science the best materials, and again by the aid of science have so combined those materials as to produce machinery, light, strong, and suited to the objects for which it is intended. Heedless of those physical laws that should govern us in our pursuits, we have added the tool-makers to the list of our masters, and become subject to the worst accident of the season, viz., drouth. That we might use those tools so well adapted to agricultural purposes, we have sought those places best adapted to their use. Such lands as we found ready for the mowing machine and contemporary tools, are lands subject to drouth, and drouth is the rule in New England.

The tools for tillage, as well as harvesting, are adapted to smooth, clean soil. Upon almost every farm there is land that never suffers from drouth, for it is always too wet. Such land has been shunned because we have accepted such tools as manufacturers were pleased to give us, only adapted to the smoothest, driest soils, instead of demanding such as we needed. The physical part of agriculture, though first in the natural order, the one that can be discussed with the most profit, has been disregarded almost entirely. Instead of seeking some place where we can use the tools offered to us, we should demand such as we need to do the work required.

It is a law, says one writer, that wheat will not do well if sowed upon a soil made loose to a considerable depth immediately before sowing, but it should be allowed to settle, and just before sowing, a light, shallow bed be provided for the seed. To meet that law, if it is a law, we need a tool to prepare that seed-bed. We want tools to remove stones and stumps from the land naturally secure from drouth, that we may avoid that most dreaded

accident, and prepare our land for the tools necessary for tillage.

Says Prof. Bailey: "It is more necessary now to discover laws than to strive directly for better fruits and vegetables." We need to understand the laws by which water is moved through the earth, the laws governing the requirements of plants, the laws of heat and light; for we have much water in the earth, much that we can make available as plant food that flows above the earth. We are surrounded with air. We have heat, moderate and intense. We have sunlight, bright and powerful. We have those skilled in art ready to supply any demand we may make. We need to study the physical character of agriculture, and make such demands upon our tool-makers as our needs may require, for they would be able to meet any requirement, and we may avoid in a great measure one of the worst accidents of the season, — drouth, — and become master instead of servant to the tool-makers, thus removing one great obstacle in the solution of the question, Will it pay?

DISEASES OF ANIMALS.

There has never before been so much talent employed in the investigation of diseases of men and beasts, especially those of a contagious character, as at present. The result of Pasteur's study and experiments in anticipating by vaccination and measurably preventing the consequences of hydrophobia has given encouragement to the investigators of such diseases as are communicable by the transfer of microbes from an infected to a healthy animal.

We copy a liberal portion of a report recently made by Dr. Paul Paquin, of the Missouri College of Agriculture, regarding his experience while studying contagious diseases in Europe under the patronage of the curators of the University of Missouri. It has been communicated to us by our former co-worker, Prof. J. W. Sanborn, Dean of the College. It will be read by our stock-growers and the general public with deep interest.

CONTAGIOUS DISEASES.

What is a contagious disease? It is one that can be transmitted from one subject to another of the same or different species. How is it transmitted? By different means. It may be through the air which carries the virus — the contagious matter from a diseased case to a healthy one, when it may be inhaled in breathing, as in contagious pleuro-pneumonia. It may be through the water or food, in the home and field for man, in the field and stable for beasts, where for some it may be also inhaled and others ingested, as in diphtheria, glanders, Texas fever, etc. Or it may be artificially by direct inoculation, an apparently insignificant operation, which, however, transmits the mighty and

dreadful germs of the maladies. I say germs. It is the very point which I shall attempt to elucidate first, at the risk of being accused of repeating what has been written and spoken a thousand times ; for notwithstanding this fact, the assertion that germs are the cause of certain diseases still sounds like a myth to the ears of those who are strangers to the wonderful discovery.

Did you ever stop and think how it is that an almost, if not totally invisible quantity of virus from a subject having a contagious disease can cause the same to reproduce itself with the same symptoms in another ? Take small-pox in man for instance. Dip the point of a needle in one of the thousand pustules that make such a fearful sight of his body. You may not see the particle of matter left on the light instrument, and yet if you thrust it slightly into the skin of a person not having been vaccinated, that person will become affected with the horrible affliction. Does not that seem most wonderful ?

Take another disease — one among lower animals. Take anthrax or charbon, which, when transmitted to man, causes the deadly, malignant pustule. How does this occur ? A little scratch, the least raw sore on the surface of the skin may allow a minute portion of virus of infected hides or residues to be absorbed, and the disease takes its course. Such cases frequently occur to tanners in countries where this affection exists. It is asserted that even flies transfer the deadly poison of the malady.

Let us consider still another one — chicken cholera — the true chicken cholera which depopulates our barn-yards with such formidable rapidity. It suffices to dip a pin in the blood of a deceased bird and prick a healthy one to see it die shortly with the same affection. Then if you repeat the operation with the blood of this last bird on another healthy one, you obtain the same results, and so on, if you continue the operation. So many inoculations, so many deaths, as a rule. The same thing may be said with as much veracity of glanders, septicæmia (blood poisoning), etc.

Now if you examine with the microscope the tissues of certain parts of some of the organs (constituting the body) of subjects affected by glanders, charbon, hog cholera, chicken cholera, septicæmia, etc., you will find them to contain certain germs by the

millions and billions — germs which you do not find in healthy subjects. But if you inoculate the most minute particle of such tissue or matter to an inoculable healthy subject, you will find the same germs reproduce themselves: some very rapidly, others more slowly. Some say those germs are the result or effect of the disease, and not the cause. In reply, I say give an example of a living thing that grew spontaneously without father or mother. No, the spontaneous generation theory or doctrine, to which Aristotle, Virgil, Van Helmont, Redi, Buffon, Needham, and later, Mr. Pouchet, Director of Museum of Natural History of Rouen, gave the authority of their names, was annihilated by the discoveries of Pasteur. His revelations at the academy of science fell like a shell on the fragile edifice and crushed its columns into atoms.

But you may say, it is not possible that the germs are dormant in the body and that they develop themselves only when certain diseases occur, diseases which, by their alteration of the system, produce a favorable soil for their growth. Perhaps, in fact, certain kinds of germs are dormant in some organs, as they are in the ground, or as wheat in a bin. But that does not say that they have grown there spontaneously. The following proves that such and such a germ gives rise to such and such disease only. If you look for the germs of chicken cholera in a healthy bird you cannot find any, not even in a dormant state; but if you take some virus of this disease, isolate, *i. e.*, separate the germs, as is done in the laboratory, inoculate a chicken with some of them, pure, free from any other substance, you will produce the very same malady. If you look in the newly inoculated subject soon after the operation, you will find them innumerable, and yet not so numerous as later on; they have only partially invaded the soil; for, although they grow and pollute with inconceivable rapidity, they are excessively small; they did not, therefore, have quite enough time to multiply themselves sufficiently to furnish emigrants and send them to the various countries of their new world. A little later, however, you will find myriads of them in many parts of the body. In substance, the same order of things may be produced with a great number of contagious diseases known, including tuberculosis (consumption). And it can be done as

well with pure, separate germs taken from diseased subjects and cultivated in suitable soils for years outside the animal body. This is done by certain laboratory methods — a point which we will discuss further on. What power can accomplish things of such nature? There is but one on earth; there is but one power that can extract the immeasurable from a unity; it is the inexplicable, admirable, strange mightiness of life. Its marvelous laws only can explain to our senses the reproduction of these germs — reproduction which is simply astonishing in comparison with visible ones, be they ever so small. They are living organisms, happily termed by Pasteur “the infinitely small” of a world invisible to the naked eye.

Can we believe such statements? I reply by another question, Can we deny the existence of things which we can see, touch, move, reproduce? What we term contagious disease, then, probably in all cases, is only the expression, the perceptible signs of the growth of germs in the body, and it is the alteration of the system due to that vegetation that causes sickness and death. We are naturally perplexed at the wondrously quick development and increase of those little organisms. Well, is it not comparatively the same in living things that we can see and appreciate? Look at that enormous maple tree in your lawn, and consider the slimness of the green grass carpeting the ground, shaded by its heavy foliage. Both belong to the vegetable kingdom, both are mature, both are healthy, and yet what a contrast! But it has taken years, perhaps a century, to make that majestic tree what it is, — in a few months the grass has grown and perhaps multiplied itself. Sow seeds of different vegetables side by side, and you will realize the striking difference in vegetation.

The same things may be said of animals. Small ones generate their like much quicker than larger ones. The potato bug (*doryphora*), to illustrate a common one, may give rise to three generations a year, each female laying an average of six hundred eggs, which hatch in less than a week. Now think of the difference in generation with the horse. Both belong to the animal kingdom. Well, the same law seems to exercise its power over the smallest living subjects of the world; those that we cannot detect without powerful optics and means to stain them and show their confor-

mation and size. These little ones are usually called *micro-organisms*, or microbes (derived from the Greek *mikros*, little, and *bios*, living), where we speak of them in a general manner; but when they are referred to as causation of disease, they are often termed bacteria, or germs, the title I have given them here. In some of them, seeds or eggs have been discovered. For instance, in anthrax fever, the bacteria that causes it shows brilliant spores or seeds that detach themselves, and may be preserved years in a dormant state and then grow in the animal body if they get access to it, just as oats may be kept a long time and afterwards sown with good results. They probably belong to the vegetable kingdom. Experiments point almost conclusively toward the confirmation of this belief. In fact, it is certain that some do. Like plants, too, they grow quicker, larger, and healthier in soils richer and better suited to their formation. In contagious diseases the body is the land in which pernicious microbes are sown, and among the various organs of the general system some prove better soil for some kinds of germs than others, just as certain patches of ground on a farm are better suited for some kinds of grains than others. It is thus that we find tuberculosis (consumption), glanders, contagious pleuro-pneumonia, developed principally in the respiratory organs, Texas fever in the spleen, small-pox in the skin, hydrophobia (rabies) in the bulb and spinal cord.

I have alluded to the cultivation of disease germs outside the animal body. I will explain this point more fully, and hope to convince the most skeptical.

Mr. Pasteur in his researches discovered that one could prepare as good and even better soils in the laboratory, for the cultivation of microbes than are found in the animal system. Among the many suitable ones we have chicken broth, veal and beef gelatinized broths, blood serum, potatoes, milk, etc., etc. These media just take the place of the body. In them we sow the germs pure, separated from all other matter, and they grow like they would in the system of the animal. We can reap one crop and sow an invisible particle of it in another artificial medium, and it will grow there also. We may thus get crop after crop to a thousand and more generations, and still they will preserve

their powers of reproduction. Then, if we take a microscopic particle of the last generation and inoculate it to animals naturally apt to contract the affection which furnished the first germs for these cultures, they *will get it* and probably die from it. This question has been proved beyond refutation. I would not hesitate to repeat the experiment if it were necessary to sustain my assertions. Science has brought the cultivation of microscopic living things to a practical business. We can see them grow like a plant in a flower-pot.

Do you wish to test the subject of cultivation of germs and contagion yourself? Here is a way if you are adapted to the business of making experiments. We know that vinegar is due to the vegetation of a microscopic plant named *mycoderma aceti*. It is a minute vegetable cell which is so amazingly prolific that in a few hours it covers like a velvety scum the surface of any liquid, becoming vinegar. To obtain this germ it suffices us to take a little claret wine and expose it to the air at a warm temperature. Soon we see on its surface some little specks, and later larger ones like a film. Now take a tub, say about three feet of surface, put a liquid into it proper to the nourishment of this microbe ; water with some alcohol, a little vinegar and phosphated alkaline salts will do ; put an imperceptible particle of such specks or scum and touch the surface of this mixture. In twenty-four hours or about, the whole surface will be covered by a uniform thin veil formed by an infinite multitude of vegetable cells. One cannot appreciate them separately without a microscope. Experimentalists of repute have assured us that every thousandth square part of the surface of such a liquid sometimes contains as many as three hundred thousand cells, making three hundred millions for the whole surface. How prodigious is that strength of life ! Now if you have another basin of such a liquid, and a particle of that scum falls or is purposely deposited upon it, the same growth will take place. The operation may be repeated with the same result infinitely. These are a kind of culture. That is exactly what occurs in contagious diseases. What we can see so plainly in the tub is the phenomenon which produces itself in the body of animals. In the tub during the generation, the growth of the germs causes a chemical change to take place, and thus produces

vinegar ; in the body they produce certain poisoning principles, — *ptomaines*, etc., which, with the mechanical action of the germs, cause disorders, illness, and death.

But if like ordinary plants the microbes grow in proper soils, like them also they stop growing when the substance proper for their formation is exhausted. In fact, if we cultivate the germs of a disease in a certain and the same soil, a broth for instance, they will grow for a time and then stop, for they find no longer the elements necessary for their nourishment. Yet they may still live for a certain length of time. Splenic-fever germs, for instance, stop growing when they have exhausted the material proper for their formation, but they are not dead ; they indeed give seeds, as I have said before. These seeds or spores are visible with the microscope ; like those of plants to which I have compared the micro-organisms so often, they may live in a dormant state for years, perhaps, and then grow if they find a suitable medium. Such is the case when charbon develops itself suddenly in a pasture in a community where the disease does not exist. The germs may have been deposited there years before ; a carcass may have been buried there, and the germs brought to the surface of the ground by earth worms. Pasteur gave us irrefutable examples of that sort. The germs of Texas fever seem to be deposited that way over certain lands.

When the soil of media sown with germs of a certain affection is exhausted, they become weaker and weaker, and when inoculated to animals in that weakened state they do not give as severe a disease as before. Fewer animals die from the effects. The germs having degenerated transmit their weakened condition or constitution to their offspring ; these grow with less rapidity and are less prolific it seems, for they cause a much milder form of disease ; such is the case in splenic fever, chicken cholera, etc. There is another opinion regarding the direct cause of a milder affection in similar circumstances, but this seems to be the prevailing one ; for although this heredity question is incomprehensible in its principle, its operations and results are conceivable because we have examples of them in the visible world. I remember well a fine large apple tree in the great orchard that surrounded the house of my father. It was the boys and girls' favorite when

I was a child because it bore large, red, sweet juicy apples that ripened early — and besides it was forbidden fruit. The tree at the time was getting old, however, and every year we noticed with great sorrow that it was gradually losing its vigor and that its fruits declined in size and number. They tried hard to preserve our good old friend in strength, but they knew not how. It was not dying fast ; it was slowly getting weaker and weaker. This degeneration kept going on until the apples ripened before they had attained the size of a hen's egg, whilst they used to grow as large as a good-sized cup.

One day seeds from those fruits were sown in the garden, and soon little trees appeared. Two or three years later they were transplanted into the large orchard, in the best soil. There we watched and waited anxiously for the first apple. We expected, of course, the large, rosy-cheeked one of the big tree of our younger days — the tree which still existed, however, at this time, but bore shriveled fruits smaller and smaller. Indeed, I fear we were ungrateful enough to scoff at the dignified octogenarian when we beheld with admiration the first blossoms adorning the head of its young offspring. They surely would be “the goodliest trees laden with fairy fruits.” How large and nice and juicy those fruits would be ! The very thought brought water to many mouths. At last they showed their little faces ; although we thought them rather slow in growing and then in ripening, we did not care so very much. We simply let them alone for a time, and then, behold ! a little bit of an apple, not much larger than a butternut. We called it a clear case of swindling on the part of *Dame Nature*, but she had but obeyed certain laws of heredity in life. It was a transmission of degeneration from parent to offspring in the vegetable world. It is about what occurs in the weakened microscopic degenerated germs which we sow purposely in an artificial preparation, or in the animal body. Their proliferation is much diminished, and, hence, as we can readily understand, the effects of their vegetation are much milder. Struck by this phenomenon and knowing that certain contagious maladies occur but once in a long time in the same subject, Mr. Pasteur endeavored, intentionally, to weaken still more their virulent germs. And behold the beautiful result ! He succeeded in

attenuating them to such a point that they still cause a slight derangement of the system, but not severe enough to kill, and yet sufficiently powerful to confer immunity, like vaccine against small-pox in man. In other words, he weakened, artificially, the *deadly virus*, and made of it a benign one — a *vaccine*. Now, how does this vaccine confer what is called immunity; or, in other words, render a subject proof against a subsequent attack of the malady it is intended to prevent? Is it also due to exhaustion (for a time) of certain materials of the body which are essential to the rapid and numerous development of germs? Or, does any chemical change, unfavorable to the life of these microbes, take place in the system? The former hypothesis seems accepted by many, yet neither of them is a satisfactory explanation to the mind. It is a very important point to enlighten. The most important one, however, is the result obtained by introduction of weakened virus into the body of healthy animals — protection from contagious plagues. This brings us to vaccination.

VACCINATION (INOCULATION).

All forms of preventive vaccination are explained by the discoveries of Pasteur. Even vaccination for small-pox, although discovered long ago by the immortal Jenner, is explained by Pasteur's theories; indeed, scientists have established definitely that vaccine against this dreadful affliction is the virus of *horse-pox* attenuated by its passage through the bovine species (calves).

As to the substances used as vaccine for other affections, I need not repeat here their general mode of production. This has already been explained in the foregoing chapters, where we alluded to the attenuation of virus by certain methods of culture, and in this condition their introduction into the body to protect against contagion. Other details necessary will be developed as we proceed.

The matter used for inoculation, as preventives, is not always weakened virus. Indeed, there are certain very serious maladies whose virus it has been, so far, impossible to mitigate with any good result. And yet we inoculate with the same virus with good success against the very disease they cause. Such is the case in contagious pneumonia and sheep-pox. We will see further how

in such instances the supposed immunity is conferred. By the way, it may be well to remark here that I have used the words vaccination and inoculation indiscriminately for the operation which consists in the transmission of the agent of contagion from a subject to another, but as a rule — although it has, perhaps, no great practical value — *inoculation* is meant for the artificial transmission of *non-attenuated virus*, while vaccination means the introduction into the body of *attenuated virus*, or vaccine. The affections against which attenuated virus is used as preventive are : Small-pox, hydrophobia (rabies), chicken cholera, hog cholera, blackleg, essential charbon, or anthrax (a splenic fever resembling somewhat Texas fever). So far, those inoculations, except small-pox, have been resorted to, I think, only in France, Germany, and Switzerland.

The actual transformation of virus into vaccine is arrived at on the principles already described, but by various manipulations ; for some it is by means of culture with the aid of proper instruments in the laboratory, and for others it is by transmitting the disease to animals of different nature, which prove poor soil, thereby mitigating the virulent agent. The vaccine of hog cholera, for instance, is obtained by transmitting the affection to rabbits, and for small-pox it is nothing else than horse-pox attenuated through the system of cattle, as I have said. We may use vaccine directly from the horse, but it is much more powerful than after having passed through cattle. Whenever horse-pox breaks out in France now, they simply inoculate calves, and keep inoculating them for the production of vaccine for the public. So they do in other places in Europe.

Let us consider briefly the diseases which concern us more directly.

HOG CHOLERA.

I need not describe here the symptoms of this affection. In Europe it is assumed by scientists that the hog cholera of America is the same as what is termed *Rouget du Porc* in France, but American writers who have studied the matter on this continent believe they differ. Both opinions are entitled to respect and worthy of consideration. Perhaps more than one kind exists. This is a point, therefore, that needs elucidation. I would not

venture a personal opinion on the subject, because before going to Europe I had not had the advantage of studying microscopically the American hog cholera, and I have just arrived home and have no laboratory sufficiently equipped for such a study now. Whether they are exactly the same or not, one thing is certain, we know that both are due to germs; that they resemble each other physically and pathologically, — at least to the naked eye, — and that the one in Europe is prevented by vaccination. The great object to attain is the production of an efficacious vaccine in this country. The chief of the Bureau of Animal Industry, Dr. Salmon, has and is still devoting much time and making careful researches in that direction. I had the pleasure to read, not long ago, that he had made some very important discoveries which were calculated to give us the desired results. We must assist him in his labors if we can, and this without producing confusion. Conscientious, disinterested, scientific researches may benefit his work and the country, but talk and criticisms not based on such a foundation are apt to make the matter only more difficult and obscure. If differences of opinion exist in the minds of the competent workers, it might be better to let them follow their own path towards a common end. Nothing more reasonable, nothing more rational than to expect to attenuate a virus of our hog plague on the same principle that it is done with the French hog plague, and get as effective a preventive. Unfortunately, outside of the Bureau of Animal Industry I know of no institution where such pursuits can be followed.

I have now before my eyes a report of a French veterinarian's vaccination against hog cholera (Rouget) in Lorraine. He vaccinated two hundred and eighty-three hogs with Pasteur's vaccine. Three of them only died of the disease after vaccination. At the side, or with those hogs, he had left seventy-three non-vaccinated ones to testify as to the efficacy of the treatment. The result was that the whole seventy-three died, and the two hundred and eighty others remained healthy. Is not that a beautiful success? Still this vaccine is not as true and as safe a preventive, as yet, as vaccine of small-pox is in man. Certain breeds of animals resist the vaccine of the disease better than others, and vaccination is much more successful in young sub-

jects. Those are difficulties which even in Europe must be overcome by constant and intelligent experiments. They are the barriers which may interfere longer than any other, perhaps, with the general success of the prophylaxis. The production of an attenuated virus, even though we may have to invent an entirely new one, may not, perhaps, present greater difficulties to conquer. It is to clear all those obstructions that help is needed, — funds for animals, buildings, laboratory, instruments, etc. But do not exact such a result in a year or so. The country may possibly be rewarded for its labors within that time, but it can hardly be expected, for it takes all of that to conduct certain experiments to any practical result. What is a year of labor for such a mighty task? Give us proper time.

It has taken a great many years for Pasteur to accomplish what he has in contagious diseases. But he has done the hardest part of the work, and we have but to follow in his track. Are we then going to remain indifferent when we lose millions of dollars annually through a single disease, saying nothing of several others which, we may confidently hope, will be prevented in the future by the same methods? I hope not. To you who are personally interested in the subject, I earnestly appeal to your sense of personal benefit and feeling of generosity. Help us, and we promise our energy and life to your service.

TEXAS FEVER.

It is useless to describe this well-known fatal malady. It seems to be, to a certain extent, of the nature of the essential anthrax, or charbon, in Europe. The kind of organs principally affected, their appearance, and the germ origin, suggest that idea. The two diseases act differently, however, in their mode of transmission. It is another affection against which diligent studies may lead to the discovery of a preventive in the future. Charbon in France is vaccinated against very successfully.

BLACKLEG (SYMPTOMATIC ANTHRAX).

This disease, so common in this country, can be successfully prevented now by Cornevin & Thomas's method of vaccination, founded on the principles of microbes as a cause of the disease.

But this method, which consists in inoculating the vaccine directly into the blood-vessels, is not, as yet, practical enough to be adopted in a general way. It may be considered in its infancy, and, no doubt, will soon be improved. The important point to observe is, that this vaccination produces immunity against black-leg, and that hence we may expect a practical process of operation ere long, even in America, if our blackleg should prove the same as that of Europe.

CONTAGIOUS PLEURO-PNEUMONIA.

I have already been severely criticised for advising inoculation against this affection in this country. Dr. Salmon, the hard-working and scientific head of the Bureau of Animal Industry, is of the opinion that it should not be practiced in such a great stock-raising country as America. The chief of the bureau has had much experience with the disease in question in this country. This fact, combined with his official position, places him in a condition in which he can judge very accurately, from every point of view, what would be the result of this treatment among stock on this continent. However, I uphold, on a scientific basis, that inoculation for contagious pleuro-pneumonia is rational, and could be practiced, *in certain conditions*, with as much success here as in France, where it is enforced by law, and effectively applied, notwithstanding what may be said to the contrary. I have seen its effects.

Perhaps I will be again personally attacked for this declaration, and, perhaps, also, my utterances may again be alluded to as based on enthusiasm. Well, just as the soldier on the battlefield must do his duty and face the fire, unmindful of the bullets of his enemies, so must we on the field of science boldly assert what we believe to be truth, and never falter in fear of being wounded. I have studied my subject and reflected on the bearing of my principles, and believing them right, nothing shall prevent me from defending them as I am called upon to do, until convinced I am wrong by logical discussion and facts, and not merely because a voice or many voices would bitterly criticize in a forbidding, authoritative tone. I respect and love authority in its principle, but duty and justice above all. Would I dare preach

a doctrine injurious to the country? Far from my heart such a sentiment. I seek for benefits through truth, which alone can stand, and we can find truth on scientific problems only by peaceful, unprejudiced, impartial, impersonal, and fearless discussions, based on experimental observations and studies.

I think, however, that Dr. Salmon, in his report for 1885, does not really dispute the efficacy of the treatment when performed strictly in accordance with the most recent discoveries of science. Some of his publications or criticisms since are what may lead us to such a belief. But, undoubtedly, he had some good reasons for his utterances. What are the results of inoculation against pleuro-pneumonia? A very small percentage have traumatic gangrene of the tail, sometimes passing to septicæmia (blood poisoning), and then death. Statistics place the number of such cases, without death, in France in the last ten years, at two or three, and it is believed that some of these are not cases of gangrene of a septic nature, but are simply due to the inflammation which sometimes arises to a considerable extent at the point of inoculation, although no septic germs are inoculated. This may be true or may not, but in neither case, however, does it constitute a bad card against vaccination, because it is hardly more serious than accidents which can be expected in many other surgical operations of such nature, and which we do not hesitate to practice. And, besides, most of those cases of gangrene, whether septic or not, may be remedied, if attended to properly before general disorder or blood poisoning has begun. It suffices to cut the tail off, or, if it is early enough, in septic gangrene, good results may be obtained by scarifying the tail all around and above the swollen portion, and rub in tincture of iodine two or three times a day. It will be absorbed and will limit the progress of the disease, probably by killing the germs. Of course, such troubles and their consequences are a financial loss. Undoubtedly a sick animal loses some of its value during illness, particularly if the result be the loss of the tail or a portion of it. But it is better to have a cow without a tail, than to have the tail without the cow. Indeed, this ornament and the hide are, perhaps, about all that may be reasonably expected from cattle in a diseased herd, or exposed to one affected with contagious

pleuro-pneumonia. Hence, with such a light percentage of accidents as I have stated, and the treatments which may be instituted to combat them, does it not seem reasonable to inoculate? But some countries give us a much higher percentage of accidents and death by septicæmia than that. Why is it? How is it that we have septic engorgements or swellings of the inoculated part? It is due to the introduction of septic germs into the wound made in inoculating, or in the unprotected and, perhaps, sometimes abraded and inflamed tissues after the operation. We can find those germs there, and find also the septic poison they engender in their growth. Where do these micro-organisms come from? Either from the vaccine inoculated, or from the surrounding air. Let none of those innumerable, infectious, microscopic, living things penetrate into the tissues, and there will be no kind of true septicæmia. The most favorable soil for the development and multiplication of those polluting microbes is what is called the conjunctive tissue, a loose substance which exists in abundance under the skin.

Now, could we prevent the occurrence of such accidents? Perhaps we could not always do so in the extremely rare cases of gangrene due to the stopping of circulation, caused by the work of inflammation; but in ninety-nine cases of one hundred we could, it seems, prevent septic poisoning from occurring, or limit its progress by the means already described. To arrive at that, we must first inoculate matter containing none of the infectious microbes; second, we must place the vaccinated beasts in such a condition that none ever get access to the tissues involved by the treatment. But are not the lungs from which we generally take the virus to inoculate with full of germs breathed in with the air? Is not the atmosphere more or less full of them everywhere? True; and here is the great point. Here lies one of the secrets of the disappointments which have so often served as a basis of the false opinions expressed regarding vaccination for the malady in question. If your humble correspondent and servant dared to give an advice, he would say: Choose a beast affected with contagious pleuro-pneumonia in the *first stages*, take the virus from the *pleural cavity* and inoculate immediately those to be protected, the

whole operation to be performed with thoroughly disinfected instruments. The pleural sac being closed to the external atmosphere, it is rational to hold that its liquid cannot contain any external germs during life and immediately after death. If no other subject could be had to take the virus from than one dead since a certain time, it would be better, I think, not to vaccinate at all, unless it be urgent to protect part of a herd supposed to be already infected, and that the vaccine be gathered only a few hours after death. Then I should insist still more on taking the virus in the pleura and using strictly antiseptic methods. Carrying vaccine virus from one place to another should be avoided as much as possible. But if it must be done, let it be in proper glass tubes, having been sterilized, *i. e.*, disinfected by a high temperature, say one hundred and fifty degrees centigrade, using every precaution possible in handling. None but careful professional men could accomplish these recommendations strictly.

Some reliable operators, however, use with success the light colored liquid which exudates from little cavities formed in portions of diseased lungs in the first stages. It is certainly effective, but it is difficult to know whether it is pure or not. Owing to the fact that conjunctive tissue is a very favorable soil for septic germs, it is preferable to vaccinate superficially in the tissue of the skin — the derma ; endeavoring at the same time to avoid bleeding as much as possible, for with the blood the virus may go off and no absorption take place. The point for inoculation is about the tip of the tail on the lower surface, after it has been washed thoroughly with a solution of corrosive sublimate or carbolic acid, and then wiped entirely dry with a clean cloth. Immediately after the insertion of the vaccine in the derma (some say under the skin, which would not be more dangerous if the vaccine be pure), I think it would be a good plan to cover the puncture or scarification with a little collodion and castor-oil. This forms a thick scum which would protect from foreign germs. Either a syringe or lancet is used to perforate or incise the skin. If the former instrument be used, it should be thoroughly disinfected with a solution of corrosive sublimate, or sulphuric acid, and then washed in clean water ; if the latter be used, it may be sterilized by passing it in the blaze of an alcohol lamp. All this

can be done quickly and accurately by a skillful operator and an intelligent assistant, much more so than I could possibly describe it in the shortest intelligible terms.

Is there anything like such precaution taken by the average operator? Some, indeed, are very strict, but far too many inoculate without any antiseptic methods whatever, using virus from any portion of the lungs, even long after death, and then insert that virus into the tissues without any discrimination; hence they often sow in their most favorable soils the septic germs of blood poisoning. Is it a wonder, then, that such accidents occur? Dr. Salmon is right in discouraging inoculation in this country, if he bases himself on the belief that the imperfect manner in which it is practiced cannot be remedied soon enough to render it safe and practical. It is this reason which has induced certain countries to reject it, whilst others, more advanced in science and better supplied with scientific operators, have made it a law.

Another point urged against vaccination is that subjects may become affected with pleuro-pneumonia afterward and die; or that, on the other hand, inoculation may cause the disease itself and spread it. Now, as to the first objection, we might as well put it in the way of vaccination against small-pox in man, for he also occasionally gets small-pox after having been vaccinated. The majority of such occurrences, I venture to say, are due to avoidable errors—bleeding, weak virus, etc., and certain other circumstances which defeat both objections. Let us explain them. Contagious pleuro-pneumonia is a most insidious disease. This fact is settled and well known. Hence, when inoculation is practiced among *apparently healthy* animals in an infected *herd*, it frequently occurs that subjects *already diseased* to a serious extent, and not having any perceptible signs, undergo the treatment. These are the cases which may get sick after inoculation and whose death, if it occurs, we wrongly attribute to either the inefficacy or the very effect of that operation. Indeed, there is nothing more consequent than such a result in a similar circumstance. If a cow already has *serious* lesions of pleuro-pneumonia progressing in the respiratory organs, we need not expect to cure her by starting the disease, however mild, in the other end—in the tail. It would be in *this case* like trying to stop a big fire on one side of a building by setting a little one on the other.

And it is just in such occurrences that subjects die, and the disease spreads after inoculation. We can readily understand that. The affection was in existence and too far advanced before the vaccinator tried to protect the animal, and it continued its course as usual, if, indeed, it was not hastened by his deed, as some authors believe it may. At this point I respectfully make a few remarks respecting the regulations of the honorable commissioner of agriculture in reference to the eradication of contagious pleuro-pneumonia according to the new act of Congress. Articles, or clauses 13 and 14 give state authorities permission to inoculate "*cattle in herds in which pleuro-pneumonia has appeared only.*" Now, in accordance with the opinions herein explained, I would scarcely attempt to perform the operation under such restrictions, for it would be at the risk of falling, with the worst effects, into the errors pointed out. In a word, I would not consent to inoculate against contagious pleuro-pneumonia without having good reasons to believe it had *not* attacked the subjects, or else I would have a thorough understanding as to the results, for the deaths which might take place afterward in such circumstances would be charged to the operation as already stated, and it would but add strength to the wrong views held in this regard. It is on such principles that I have advocated the inoculation of *non-affected* animals — cattle which had only *been exposed* — in order to limit any center of infection making its appearance in a rural community, and these are the doctrines which were so severely condemned by the Bureau of Animal Industry. But now the regulations of the department of agriculture prevent any reliable investigations to be followed on the subject of inoculation, and I presume this question must be set aside. We will applaud to the restriction, however, if we can with the aid of the new law stamp out forever the troublesome affection. I wish it earnestly. And like Dr. Salmon, I believe that there is no better means of eradicating the malady under discussion than by killing *all* the affected herds, if it *can be done*. I never had any desire to oppose such a practice or deny this truth, by any means, but that does not exclude inoculation from the highest rank among the scientific prophylactic (preventive) treatments.

Now, I may be asked, how is immunity conferred, or how are

animals protected against contagious pleuro-pneumonia without giving the disease strongly by the inoculation of pure non-attenuated virus? Well, it is probably the result of the application of one law which I have spoken of elsewhere in this writing. Certain soils in the body are better suited to the growth of certain germs, just as the same thing is true in the culture of seeds on a farm. The virus of pleuro-pneumonia grows slowly and poorly in the tail, probably because it is a soil which does not contain the elements proper to its rapid development, and consequently it is attenuated and causes a comparatively mild trouble, which insures against a second attack. This seems to be the accepted theory among a number of scientists, but of course it cannot be relied upon as a positive fact. A curious thing exists in regard to the effect of *inoculation* of certain contagious diseases, in comparison with the effects of the same when they have *accidentally* taken hold of a subject or subjects. The disease given by inoculation is much milder than that caught accidentally one way or the other.

SMALL-POX

in man and contagious pleuro-pneumonia are types of such maladies.

The responsibility of my position as director of a vaccine and experimental laboratory is very heavy, considering the thousands of human beings who, to save themselves from a horrible disease, are forced to submit to the inoculation into their body of a substance of which they know nothing — not even its source, which is of capital importance. Indeed, this is the point which necessitates the greatest prudence and a certain knowledge of the contagious diseases which may be transmitted by vaccination — I mean the affections which are transmissible from animal to man, or *vice versa*, those transmissible from man to man only, and from animal to animal.

Since we are more enlightened on the cause of contagious diseases, it frightens one to think that in vaccinating a child, other diseases worse than small-pox might be given, — tuberculosis (consumption) for instance, the most mortal enemy of life, to say nothing of other still more loathsome constitutional affections.

But if science has given us that dread by its light, it has, nevertheless, done a wise thing ; it has, by that means, forced man to be prudent, and to search deeper into the nature of the preventive treatment adopted universally. It has led to the solution of the long-discussed subject of the origin of vaccine, and thus given us the means of producing a safer article. In fact, the knowledge that vaccine is horse-pox attenuated by its passage through the bovine system (cattle) is very useful in the cultivation of vaccine, which takes the name of cow-pox. As stated elsewhere in this paper, cow-pox vaccine and horse-pox are one and the same affection. This fact has been established by experiments of the most rigid character, and approved by the French Academy of Medicine long ago. What was supposed formerly to be natural outbreaks of cow-pox had probably their origin in horse-pox which existed simultaneously in the same localities. In fact, Jenner had recognized this, or at least he doubted such to be the case, as we can see from old writings.

Before closing I should like to say a few words in regard to the treatment of Mr. Pasteur against hydrophobia (rabies), were it only to answer in a general way the innumerable questions I am asked on the subject. But my report is already long — too long, perhaps, to begin this matter which does not interest us so closely and which would add several pages to these. I will simply say that the treatment in question is a vaccination based on the same solid rock which constitutes the foundation of vaccinations used successfully against other diseases, *i. e.*, micro-organism as the probable cause of rabies ; the attenuation of the virus ; its mild effects when so inoculated, and the non-recurrence of hydrophobia.

CONCENTRATION OF THOUGHT AND ACTION.

BY GEORGE S. PHILBRICK, OF TILTON, MEMBER OF THE BOARD
FROM BELKNAP COUNTY.

The farmer of to-day, like his prototype of the time of Abraham, is intensely conservative. The world, with him, moves slowly; the changing of ideas, like the changing of the seasons, is gradual and almost imperceptible. Meeting the same objects year by year, surrounded by the same scenes, living in the world of muscle instead of brain, untaught in childhood to habits of thought, untrained in manhood to close, consecutive study, to reason from premise to conclusion, and from conclusion back to premise, till the logical deduction is firmly established in his mind, and thus made to become the basis of an idea from which to work out a practical result, do you wonder the world has far outstripped him in its grand onward march of improvement? Most of the thirty-two thousand farmers of New Hampshire are to-day living in a world of their own, as isolated from and as unsympathetic with the jostling, driving, calculating world around them as the poles of a battery. Isolated because living outside of the great currents of the world's thought, wanting sympathy because failing to comprehend their relations to them.

Our fathers conquered a wilderness and made them homes in the desert. Strong of heart and of hand, with simple habits, and wants bounded by the capacity of the soil, success, aye, a competence for them was certain. The great waves of commerce and trade had not reached their doors. Their farms must supply

their every need, and a system (if system it could be called) of mixed husbandry became a necessity. They were the people, each farm a miniature world by itself, each farmer an autocrat, whose opinion was unquestioned and whose rights none invaded. I have said their habits were simple, so their wants were few; and though their families were in the main large, there was seldom pinching want. Freedom with food, clothing, and shelter, — food coarse and plain indeed; clothing in summer from flax raised by their own hands, and in winter from the wool of sheep that grazed the hillside pasture; one pair of cowhide boots a year, the legs of which were carefully preserved after the feet were worn out, and made over into a pair of shoes for the wife or one of the girls in winter, both sexes going barefooted nine months in the year, with an occasional best gown of alpaca or linsey-woolsey and a few yards of ribbon brought from abroad, and only worn on rare, very rare occasions. Of books, aside from the Bible, *Pilgrim's Progress* (not by Mark Twain), and Baxter's *Saints' Rest*, there were absolutely none. Forty years ago I do not think there was a farmer in our town that had as many books as I could carry on my arm. I doubt very much if they all did. A daily paper, a review, a magazine, a lady's book of fashions, had never been heard of, much less bought and paid for as one of the absolute necessities of life. In those days they made money. They could not help it. The soil was full as productive as to-day, and insect pests much less numerous, while the prices received for "stuff" raised on the farm, when you take into consideration the purchasing power of gold, were fully equal to those of the present.

"There was satisfaction then in knowing
Their grass and bank accounts were growing."

Your grass has grown, but how about the bank account? How many farmers within the sound of my voice can show \$1,000 as the product of their labor for the past ten years? Is it not true that there are more farmers who have hard work to pay their taxes and make the year come around so "the ends will meet" than there are who succeed in putting a dollar at interest or make a dollar's worth of improvements on their farms or buildings? And yet you are carrying on the same farm your father did, and

farming just as he did. I was in a village store not long since, and the merchant, after telling me the farmer seemed to be running behind, said the trouble with them was *they did not work*. If they would only work as hard as *he* did, they could lay up something. That man never raised a potato or milked a cow in his life, and yet, in his own mind at least, he had solved the whole problem. I have heard it remarked that Cæsar would have been considered a very good king if he never had attempted to govern.

I am no enthusiast for New England farming, but I am not one of those who believe New Hampshire should be turned out for a sheep pasture. As a farmer to the manor born, and one who has made the business a study through long years of experience, instead of saying you ought to work more, I should say you ought to *think* more. I believe the art of farming is still in its infancy, and every farmer owes it to himself and to posterity to do something to help rear it up to manhood and develop it into a giant capable of meeting and overcoming all the obstacles in its path, and taking the place which God intended it should take, side by side with the great industries of the world, equal to any and excelled by none. But how are we to accomplish this result? While we have been plodding along "in the good old way," the world has got ahead of us with its steam ships and steam railroads, with its telegraphs and telephones, speaking across a continent or under the ocean; the mighty arms of commerce reaching all lands, penetrating every nook and corner of the world, bringing to our doors the products of every clime, bringing us into competition with every toiler on the globe, often offering us the very products of our farms cheaper than we can raise them. Have you ever considered what a mighty territory is just being opened up by the Northern Pacific Railroad? One hundred states as large as New Hampshire could be carved out of it, and still have room for the great state of New York. Land of the fertility of which no man has any conception if he has never seen it. East and west you could run a plow as far as from here to New York city and never take it out only to cross the streams. North and south you could turn an unbroken furrow as far as from here to Chicago, save where you crossed the

brooks and rivers. That vast empire is being settled with a rapidity never equaled by the settlement of any other country. If you cannot make farming pay now, what will you do in competition with the wheat and corn, cattle and sheep, horses and swine of the great Northwest, as you very soon will be. I have spoken of the simple habits and plain style of living of our forefathers. Do you think you can return to them, and thus increase your income by decreasing your expenses?

Your daughters are as bright and pretty as your neighbor's who keeps the village store; are you going to refuse to add to their natural charms the benefits of an ornamental education? They are fond of music. How about the piano? Your son is as smart and promising as any in town, and you are ambitious for him to start in life a little better than you did. Are you going to make a man of him by keeping him constantly tied down to grinding toil? The woman you love and cherish — don't you want her to dress like other women whom, in your heart, you do not think half as pretty or good or self-sacrificing as she is?

How about yourself? Are you ready to live on hominy and hasty-pudding, baked meat and beans, with fried salt pork for breakfast and dinner three hundred and sixty-five days in the year? Wouldn't you be a little loath to exchange your carriage for a thoroughbred wagon or a cart with no springs at all? Are you willing to give up your newspapers, books, magazines, etc., including the thousand and one things which go to make up your every-day life, but cost money, and your fathers never dreamed of? I know you are not; and even if you could persuade yourself to do so, you could not persuade your family. Your girls would leave home for the city. Your sons would run away, and no one would blame them; and if your wife did not leave you, she would earn a martyr's crown and soon wear it. "New times demand new measures and new men" was never truer than it is to-day. The car of progress is on the track and going at a rate of speed never before realized. We have our choice to keep pace with it or be crushed by it. There is no escaping the conclusion. The man who doubts or hesitates is lost.

Most men are great only in one direction. Indeed, the world's benefactors from Moses to Columbus, from William of Orange to

our own Lincoln, have been men of one idea, with a single aim in life, which they have followed with tenacity of purpose and unflagging zeal.

The days of mixed husbandry as our fathers understood it and followed it are past. To succeed, you must be men of one idea, one purpose, one object, and follow that as the beacon light of your existence.

Louis Kossuth, in a speech in Boston, said "Everything is possible to him who wills it." I wish I could impress that thought upon the heart of every farmer, especially every young farmer here present. You stand beside a giant oak with an ax in your hands, and commence to cut it down. You strike blow after blow, and yet make very little impression on it. Its head is still reared to the clouds and its leaves still sing merrily in the breeze. Do you falter? Do you get discouraged? Do you for a moment doubt your ability to bring it to the earth? Not for a moment; though the trunk may be gnarled and twisted and nearly as hard as iron, you still persevere, and soon the mighty monarch lies prostrate before you.

You all remember when that man went to the Saviour, to be healed of his infirmity, what our Lord replied: "According to your faith, be it unto you." Now, whether you believe in God or do not, you cannot doubt that the rule still holds good in all the affairs in life. There is no such word as fail to the man who believes in success. That man will control circumstances whose indomitable pluck and perseverance cannot be overcome by circumstances, however dark and discouraging, and like Sheridan at Winchester, "Will bring victory from defeat itself."

Study your business and study yourself, study your circumstances and study your soil. Make up your mind deliberately and carefully, taking all things into the account, what branch of farming it is best for you to follow, and then bend all the energies of body and mind in that direction. Let it be your thought by day and your dream by night. You may be discomfited, but you cannot be defeated; you will meet with discouragements by the way, but you will never yield to them, and in the end, success, rich, grand success will crown your efforts. I know that men who make a specialty in farming have been regarded as

cranks and fanatics, but that condition is fast being relegated to the past. The man who grasps an idea and boldly starts out to follow its lead is to-day the progressive man, doing what he can to elevate his calling, and is sure of his reward, both in his pocket and in the esteem of his fellow-men.

Before I leave this part of my subject, I wish to say a word on the importance of little things, for in them lies the secret of success, and inattention to them opens the road to failure. A millionaire on a street in Philadelphia was once asked for a penny. The rich man drew one from his purse and was about to hand it to the beggar, but instead returned it to his pocket with this remark: "I don't care anything about the penny, but I can't afford to lose the interest." The law of compensation runs through everything, and the rule of interest applies where we have never imagined. A tainted milk-can may lose a customer. Vile odors from an unventilated manure-cellar, though so faint as to be scarcely perceptible by one accustomed to work around the barn, have sent many a pound of otherwise gilt-edge butter to the soap factory.

I saw a sleigh last winter which nearly one hundred years ago was owned and daily used in winter by the then governor of New Hampshire. It had been stored in a shed during the summer which had a leaky roof, and was decayed beyond repair. Five cents' worth of time and shingles would have made the roof water-tight and preserved that interesting and valuable relic.

Cross words and hasty acts while handling your cows may seem little things, and yet they affect both the quantity and quality of milk. A merchant in a neighboring town bought a fine cow from which to make the butter for his own family. Two of his clerks boarded with him and took turns milking. The first week Ben milked the cow, and she made ten pounds of butter; the next week John milked, and only eight pounds were churned. The merchant was at a loss how to account for it, but his little boy said, "Papa, I think I can tell. When Ben milked he always patted the cow and said 'so pretty Daisy,' but John would slam the milking-stool down and say, 'get up here, you old brute.'"

A bill was before the last legislature to establish an experimental station somewhere within our borders at the expense of the state,

and it would probably have received the sanction of the legislators had it not been known that a similar bill was before Congress to establish one in every state at the expense of the whole country. I certainly hope the bill will pass. It is a step in advance and a step in the right direction, as I believe. To the careful student of the times it means much more than a series of experiments in feeding stock, cultivating the soil, and testing agricultural machinery. It means that the importance of the farming interests, in its relation to the stability, wealth, and prosperity of the whole country, is being seen and recognized by the abler minds in every walk in life as never before. I hail it as the rising of the day-star of hope to the farmer which is to usher in the glorious sun of peace and prosperity.

Shall we as farmers stand idly by with hands thrust deep in our trousers pockets, and let men engaged in other callings do all our thinking? Shall we in this our day fail to arouse ourselves and grasp the opportunity?

Having chosen your occupation — for I hold every branch of farming should be and is a distinct occupation by itself — begin at once a series of experiments. They need not be extensive or expensive even — better they were not — but in order to be of practical value, they must be extended through several years, and every step studied in detail and noted for future reference. Never jump at conclusions or accept anything as settled till you can satisfactorily explain it. The great law of cause and effect runs through every thing, and the reason why will be found of all those who patiently seek for it. I heard a young man say he believed he was made for something better than picking rocks and shoveling manure. He had not left the paternal roof, but was seriously considering the advisability of doing so. Conversing with him, I learned they had an extensive farm pleasantly located near a manufacturing village, kept a large stock of cattle of no particular breed, planted and sowed a little of almost everything without much regard to season or soil. They had no idea how much it cost per day to keep a cow or horse, couldn't tell whether it took eight quarts of milk to make a pound of butter or eighteen; thought they might get a pound of cheese from a pail of milk, but didn't know sure; "guessed they wa'n't making much, kinder keeping along."

No wonder that young man had got, to use his own expression, *disgusted with the whole business*.

Life on a farm conducted as that was becomes as dull and monotonous as a tread-mill, dwarfing heart and mind, and deadening all the finer instincts of one's being. And yet the owner was considered one of the best farmers in the town.

This is no fancy sketch, neither is it an isolated example. Hundreds and thousands of farms all over the state are being conducted just that way, and with just such results. The farm don't pay, the boys are dissatisfied and leave home for more congenial fields of labor. Do you blame them for it? What possible inducement is there for them to remain, mere beasts of burden. No man loves labor for itself alone. The object sought is the "recompense of reward," and the pathway over which life's race is run can be made much smoother by a little forethought. Your son's mind as well as his body needs to be engaged in the struggle. How many farmers ever stop to think of this? How many ever realize that a boy has thoughts and emotions and opinions to be guided and educated, rather than contemned and crushed.

Pardon me if I digress a little. I have seen a good deal in the papers during the past ten years about "keeping the boys on the farm," and every one of the writers has failed, in my judgment, to make the point he started out to make, from the fact that they all leave the boys entirely out of the account. You get up a Fourth of July celebration, and put that old Declaration which cost our fathers so much to make, and which you and I love so well, into some fellow's hands and tell him to read it. He begins, "We believe all men are created free and equal, and endowed by their Creator with certain inalienable rights, among which are life, liberty, and the pursuit of happiness." "Hurrah, that's the doctrine; read that again." "We believe that all men are created free and equal, and endowed by their Creator with certain inalienable rights, among which are life, liberty, and the pursuit of happiness." "Yes, yes! That's it. We don't see how any one can believe anything else."

Now if you really believe that, why do you make an exception in the case of the boy whose father happens to be a farmer? The sons of men in every other calling are left free and uninflu-

enced to choose such occupation as their tastes or talents or fancy dictate; but the boy who happens to be born on a farm has no right to have any taste or talent or fancy for anything but farming. I say the whole idea is reprehensible and preposterous from beginning to end, and the man who indulges it ought to have been born in Russia and have died childless. If you want your boys to make the most of themselves, to honor you in your old age, and bless your memory when you are gone, let them choose their own calling, no matter at what cost or self-sacrifice to yourself for the present, and you will never regret it. You had that right years ago. Shall your sons have any less than you had? They will be ten times as apt to stay contented on the farm if they know they do so voluntarily. A man must love his occupation in order to succeed in it, else it becomes mere drudgery instead of a delight.

But to return. If these propositions which I have here laid down are true, and you see fit to adopt them, and begin in earnest to study your business as men in other callings have to study theirs, take my word for it, in a surprisingly short time the world in general, and New Hampshire farming in particular, will wear a very different aspect to you from what it does to-day. No man has ever yet reached the limit of productiveness of an acre of ground. It may never be reached, but that we can make long strides in advance of anything ever yet accomplished, no man will deny.

I know a man in Belknap county who a few years ago purchased eight acres of plain land so poor it would hardly grass over, investing in it nearly every dollar he had. On it he built a silo, I think the first one built in the county. It was made of wood, and very cheaply constructed at that. Well, that man became the laughing-stock of the whole community. They nicknamed him *Silo* in derision. But he had an idea, and no matter what people said or thought, he resolved to work it out. I went to his place two weeks ago to see and learn for myself what he had accomplished. I found him bright, cheerful, happy, and one of the most enthusiastic men I have met for a long time. From the product of his eight acres of poor land (and his neighbors called it) he has built a good house and barn, and this

winter has twenty-one head of grown cattle and a horse, and not a pound of hay in his barn. All are fed on ensilage, and are looking better, much better, than the cattle will average throughout the county which are fed on dry fodder. On four acres he raised sufficient ensilage corn to keep these twenty-one head of cattle five months. His neighbors have long since ceased to laugh at him, but instead are studying his methods and preparing to follow his example.

If such results can be obtained from eight acres, what, I ask you farmers whose homesteads cover hundreds of acres, are the possibilities of your farms when wisely and intelligently managed so as to make the most of them?

Sir Isaac Newton, whose research and investigations in the scientific world have so blessed mankind, said at the close of his life that the great ocean of truth lay all undiscovered before him.

In view of what has been said here and in view of what we know is being accomplished around us, what shall we say of the vast possibilities of the agricultural world?

The Athenian philosophers caught the light of the sun as it flashed from the shield of Minerva, and they looked no higher. A New Hampshire farmer, standing in the gray dawn of the twentieth century, should be content with no reflected light, but taking the most advanced thought of the ablest mind of his time for a stepping-stone, let him press toward the mark for the prize of his high calling.

OATS.

BY JOSEPH B. WALKER, CONCORD.

"A grain which in England is usually fed to horses, but in Scotland supports the people." — *Dr. Johnson.*

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| 1. Nativity of oats. | 11. Accidents to oat crop. |
| 2. Importance of the oat crop in the United States. | 12. Cutting and curing. |
| 3. Oat crop in New Hampshire. | 13. Profit in raising oats. |
| 4. Varieties of oats. | 14. Oat meal. |
| 5. Best climate for oats. | 15. Comparison of United States cereals. |
| 6. Best soil for oats. | 16. Comparison of New Hampshire cereals. |
| 7. Chemical composition. | 17. Agricultural progress in New Hampshire. |
| 8. Fertilization. | |
| 9. Weight of oats and value. | |
| 10. Different methods of raising oats. | |

I.

NATIVITY OF OATS.

OF the nativity of oats we have but an imperfect knowledge.* The Bible, while it speaks of wheat and barley, says nothing of oats. Indeed, I have found no mention of this grain previous to the Christian era. Since then it continually appears in agricultural history, and with increasing frequency as we approach modern times.

* "It was cultivated by the prehistoric inhabitants of Central Europe, and is found in the remains of the late habitations in Switzerland, but Prof. Heer states that it did not appear until the bronze age and long after the appearance of wheat and barley." — U. S. Census, Vol. Agriculture, p. 493.

It may be considered, therefore, as a comparatively modern grain, developed very likely from the plant bearing the name of "wild oats" (*avena fatua*). I may, perhaps, be pardoned the remark that the sowing of wild oats by youthful hands has, at times, resulted in a type of manliness whose excellence ranks as high in the physical as do the finest varieties of *avena sativa* in the vegetable world. I would not, however, be understood as recommending the frequent sowing of such a crop by such hands.

We are told that that worthless Roman emperor Caligula (A. D. 12-41) fed his favorite horse, Incitatus, on gilded oats out of a golden cup. Suetonius says that "for this favorite animal, besides a marble stable, an ivory manger, purple housings, and a jeweled frontlet, he appointed a house, with a retinue of slaves and fine furniture, for the reception of such as were invited in the horse's name to sup with him. It is even said that he intended to make him consul." However valuable or cheap the horse may have been, he was, without any doubt, the superior of his master. Nevertheless, the folly of the latter has preserved for us the fact that oats were known in Roman agriculture at that remote period, but we have traced them no further.

II.

IMPORTANCE OF THE OAT CROP IN THE UNITED STATES.

Oats rank third in importance among our American cereals. The crop of 1879 was 407,859,999 bushels. They grow in almost all sections of the United States, from the southern frontier of Texas to the northern line of Oregon, and from the eastern side of Maine to the swamps of southern Florida. Indeed, their northern line of culture extends far beyond our Canadian frontier up to the great peninsula of our arctic territory of Alaska. In Europe they thrive luxuriantly in all parts of Ireland and Scotland. They are at home in Norway, Sweden, and all the northern countries of that continent. Their northern limit is contemporaneous with that of rye and barley, reaching up to and even within the arctic circle.

III.

THE OAT CROP IN NEW HAMPSHIRE.

We should expect, therefore — as in fact we do — to find this cereal flourishing in this cold state of ours. If we cannot compete with Florida in the production of oranges and bananas, we can beat her and all the other Southern states in raising oats.

The oat crop, which has always been an important one in New Hampshire, is very largely a northern crop. The yield south of the Ohio River ranges from less than ten up to twenty-five bushels per acre. North of this line it varies from twenty-five up to sixty, seventy, and even ninety bushels. The amount of oats raised in 1879 north of the thirty-ninth parallel of latitude was over three hundred and sixty-three millions (363,020,399) of bushels, while south of it the crop amounted to less than forty-five millions (44,818,600). More than one half of all the oats raised in the United States grow where the July temperature is from 70° to 75°, and only about one quarter (27.7 per cent) where it is from 75° to 80°.

The seventeen Northern states — Connecticut (27.52), Maine (28.76), Massachusetts (31.23), Michigan (33.93), Minnesota (37.87), Nebraska (26.18), New Hampshire (34.51), New Jersey (27.00), New York (29.79), Ohio (31.49), Oregon (28.92), Pennsylvania (27.34), Rhode Island (28.58), Vermont (37.59), Illinois (32.24), Indiana (25.02), and Iowa (33.57) — gave in 1879 an average yield per acre of 36.79 bushels, while the seventeen Southern states — Alabama (9.36), Arkansas (13.33), California (26.85), Florida (9.76), Georgia (9.06), Kansas (18.77), Kentucky (11.35), Louisiana (8.56), Maryland (17.75), Mississippi (9.87), Missouri (21.34), North Carolina (7.67), South Carolina (10.39), Tennessee (10.08), Texas (20.56), Virginia (9.47), and West Virginia (15.04) — gave a yield of but 13.48 bushels.

In 1849	New Hampshire	raised	.	.	973,381	bushels.
In 1859	"	"	"	.	1,329,213	"
In 1869	"	"	"	.	1,146,451	"
In 1879	"	"	"	.	1,017,620	"

or about one fourth of one per cent of the whole crop of this country.

During the year last mentioned the crop occupied 29,485 acres, and yielded a return of 34.51 bushels per acre.

THE OAT CROP IN NEW HAMPSHIRE.

The following table gives the number of acres devoted to this crop in each county, the quantity raised in each, and the product per acre : —

OATS 1879.

COUNTIES.	Acres.	Bushels.	Bushels per acre.
Belknap	1,149	33,941	29+
Carroll	1,381	35,227	25+
Cheshire	2,535	90,774	35+
Coos	5,666	228,698	40+
Grafton	9,719	360,902	37+
Hillsborough	1,772	49,441	28+
Merrimack	2,692	75,039	27+
Rockingham	1,155	26,572	23+
Strafford	520	12,546	24+
Sullivan	2,896	104,480	36+
Whole state	29,485	1,017,620	Av. 34.51

It appears by this that the largest amounts were raised in Grafton and Coos, and the smallest in Rockingham and Strafford, the two first named having produced 589,600 bushels, more than one half (57 per cent) of the entire crop of the state, the former raising thirty-seven and the latter forty bushels to the acre ; while the two last named produced but 39,118 bushels, raising, respectively, the first twenty-three and the last twenty-four bushels per acre.

IV.

VARIETIES OF OATS.

There are four general kinds or classes of oats in cultivation, each of which has marked characteristics. These are very easily distinguished from one another, and are : —

1. The Class *Avena Sativa* (Fig. 1), which embraces all those varieties in which the seed branches shoot out from the stalk on all sides and form a symmetrical and rounded top. This class is familiar to us all, and has a stalk varying in height, according to culture, soil, and climate, from one to four feet.



Fig. 1.

2. A class not common with us, *Avena orientalis* (Fig. 2), in which the seed branches shoot out from one side only of the stem.

and form a kind of mane, resembling somewhat that upon a horse's neck. Hence the name of horse-mane oats which this class sometimes bears. It is a bearded oat, and more hardy than that first mentioned. It has a seed which is long in proportion to its size, and grows readily on poor soil, flourishing where the former would not live. It is sometimes called the Tartarean oat. It makes a good food for horses, but is not a desirable kind to grind into meal.



Fig. 2.

3. The naked oat (Fig. 3), *Avena nuda*, which bears its seeds loose in the surrounding husks. It is small, and has been considered a degeneration from the common oat. It is common in Austria, where its flour is considered important as a food for invalids.



Fig. 3.

4. The walking oat, *Avena sterilis*, whose seeds are inclosed in stiff, hairy husks, each having a long, hygrometric awn twisted often closely upon itself when dry, but which, upon absorbing moisture from dew or rain, slowly uncoils, and in that act imparts to the seed a movement over the ground and into any fissures which may chance to be open to receive it. From this characteristic it often has an animated appearance, and is perpetuated by self-planting. It is valuable only as a curiosity, and may doubtless be found in the seed stores by any one wishing to test its peculiar qualities.

Whether these four classes are distinct species, I will not undertake to say. They certainly possess marked and distinct characteristics. It is with the first that we are particularly concerned, and to this I shall largely confine what I may say upon the subject now under our consideration.

There is another division of oats into white, black, and dun, the latter being probably a hybrid from the two first. There is also another still into winter and spring oats. But it will hardly pay us to tarry to dwell upon these.

The number of different varieties under these general classifications are very numerous, particularly in oat-growing countries.

In his report upon British agriculture, made nearly fifty years ago, the Rev. Henry Coleman states that he found no less than fifty distinct varieties in the museum of the Highland Agricultural Society. Mr. John C. Morton, in his Cyclopædia of Agriculture, presents a list of as many, with accompanying descriptions of a part of them. This is as follows, viz. : —

CULTIVATED OAT (*Avena Sativa*), WHITE SPECIES.

- | | |
|----------------------------------|-------------------------------------|
| 1. Potato. | 18. Capar Grange or Grange of Both- |
| 2. Sandy. | 19. Blainslie. [ric. |
| 3. Hopetown. | 20. Georgian. |
| 4. Early Angus. | 21. Early Kent. |
| 5. Sheriff. | 22. New Early Essex. |
| 6. Barbachlan. | 23. Blue Major. |
| 7. Cumberland Early. | 24. Malbiehill. |
| 8. Friesland or Dutch. | 25. London Dun. |
| 9. Old Poland or Tam Finlay. | 26. Danish. |
| 10. Dyock or Davidson's. | 27. Poland. |
| 11. Flemish. | 28. Three-grained. |
| 12. Kildrummy or Halkerton. | 29. Agyleshire. |
| 13. Siberian Early White. | 30. Cleland. |
| 14. Strathallan Irish or Earish. | 31. Lancashire Witches. |
| 15. Late Angus. | 32. Tuscany Early. |
| 16. Gray Angus. | 33. Church's or Churrick's. |
| 17. Drummend. | 34. Hanquiseide. |

CULTIVATED OAT (*Avena Iativa*), BLACK, DUN, OR RED-COLORED AND PARTI-COLORED SPECIES.

- | | |
|--------------------------|--------------------------|
| 35. Common or Old Black. | 38. Brown or Archangel. |
| 36. Common Dun. | 39. Red Essex. |
| 37. Winter Dun. | 40. Orleans Early Brown. |

CULTIVATED OAT (*Avena Orientalis*), WHITE SPECIES.

- | | |
|-----------------------------|----------------------------|
| 41. Common White Tartarean. | 42. Early White Tartarean. |
|-----------------------------|----------------------------|

CULTIVATED OAT (*Avena Orientalis*), BLACK SPECIES.

43. Early Black Tartarean.

WILD OAT (*Avena Fatua*), OCCASIONALLY CULTIVATED FOR MAKING OAT HAY.

- | | |
|------------------|---------------------|
| 44. Common Wild. | 45. Marked Bearded. |
|------------------|---------------------|

Avena Brevis.

46. Short.

NAKED OAT (*Avena Nuda*), NOT CULTIVATED.

47. Common Naked.

| 48. Small Naked.

Danthonia Strigosa.

49. Bristle-pointed.

Avena Sterilis, OCCASIONALLY GROWN AS A CURIOSITY.

50. Animal or Fly.

Still another division of oats is frequently made, designated as early and late oats, one little regarded by the average farmer, but not unfrequently of great importance to him. If summer droughts are common in his locality and must be avoided so far as may be, to secure a successful crop, he had better secure varieties maturing in the briefest periods, and sow them as early as practicable, thereby making sure to his crop the moisture which the spring and early summer are likely to afford. The early varieties are also best adapted to lands which cannot be worked until late and afford an abridged growing period. Such lands will often give good crops of early oats, while they would be quite unlikely to mature crops of the later varieties.

If droughts are not anticipated and the growing season is of good length, the late varieties will generally be preferable. As in the case of Indian corn, the farmer must suit his seed to the climatic character of his locality.

V.

BEST CLIMATE FOR OATS.

The fact that more than half of our oat crop should have grown in the two most northern counties of the state is a marked one, and suggests some inquiry as to the climatic preferences of oats.

The best authorities all agree that this grain delights most in a cool, moist atmosphere of pretty equable temperature. Some of the best oats of Europe are raised in Ireland and Scotland, where cool weather and much dampness prevail during the growing

season. While England is not warm enough to mature Indian corn, most parts of it are too dry and warm to produce as good oats as are produced in Scotland. The heaviest oats and the best come from high latitudes and moist localities. Four fifths of our oats are raised where the spring and summer rainfall is from fifteen to twenty-five inches.

If to a moist climate there be added a high temperature, the rapidity of growth would doubtless be hastened, a coarser straw would be produced, and, possibly, larger and heavier seeds of high quality. Further experimentation, however, is necessary to settle this last point. Thus far the best oats, either for cattle feed or for meal, have been found in countries having a cool summer climate. Where dry and hot summers prevail, subject to droughts, the oat crop does not attain a maximum yield or quality of either seeds or straw. The latter is likely to be short and thin ; the former to be few and of light weight.

VI.

BEST SOIL FOR OATS.

While oats grow upon all kinds of soil, from sand to clay, they flourish most upon moist soils well pulverized and fairly enriched. One year with another, heavy oats cannot be raised on light and dry soils. Sooner or later the crop will languish, and the yield of straw and grain will both be light.* To be sure, the farmer must use such soils as he has, and if they are but indifferently adapted to this crop, he must seek new seed pretty often from cooler ground and climate. By this means he can maintain a higher standard of weight than he will be able to do by sowing continually seed of his own raising. If one aims for maximum crops of oats of high quality, he must seek them on moist, loamy ground and under such circumstances as will secure uninterrupted growth during the whole season from sowing to harvest.

* A little experience of my own during the past season illustrates this remark. My oat crop was raised upon a piece of land some sixty rods long, whose surface lay in slight alternate hollows and ridges running square across it. The former were moist all the while the crop was growing, but the latter, catching every ray of the sun and opposing every passing breeze, were dry, and became quite so during one or two periods of sharp drought. The consequence was that while the crop as a whole measured up thirty-six bushels to the acre, the hollows gave double the amount of straw and grain given by the ridges

If you will allow me to quote from my own experience, I will say upon this point that the highest yield of oats I have any record of having raised upon my farm was fifty-eight bushels to the acre. About the same time a neighbor of mine, on land very like my own, and not eighty rods distant, was wont to get ninety bushels with no better culture.* This fact simply shows that in the case of oats, as in that of grass, corn, and other crops, particular soils have special aptitudes for particular crops, and that it is for the farmer's interest, so far as he can, to raise his oats on such of his soils as are best adapted to their production.

VII.

CHEMICAL COMPOSITION.

The following table of the chemical compositions of oats, Indian corn, and rye shows at a glance the comparative feeding value of each of these. The calculations, which have been made water-free, are taken from the United States Census of 1880 : —

GRAINS.	Ash.	Albuminoids (protein).	Fiber.	Carbohydrates (Starch, Gum, etc.)	Fat.
Oats (average of 20 analyses)	3.29	12.76	10.07	68.31	5.57
Indian Corn (8-rowed Flint)	1.65	13.86	2.61	76.30	5.58
Rye (New Hampshire variety)	2.12	13.24	2.34	80.65	1.65
Oat Straw (water-free)	2.07	2.63	68.96	30.19	1.15
Rye Straw (water-free)	9.18	7.88	39.08	40.82	3.04
Wheat Straw (water-free)	3.44	2.38	40.48	50.96	2.74
Corn Fodder (white Flint field-dried)	5.13	7.57	33.06	52.49	1.75
Ensilage (corn fodder from Mass.)	6.47	7.00	37.08	46.48	2.95

From these figures it appears that the percentage of albuminoids in oats is 1.10 less than in corn, and .48 less than in rye.

* Mr. George M. Smith, of Stark, showed the writer of this paper a bin of oats which he raised in 1886, and which yielded one hundred and twelve bushels per acre and weighed forty pounds per bushel.

Also that the percentage of carbohydrates is 7.99 per cent less than in corn, and 12.34 less than in rye; while the comparatively worthless fiber is almost four times as great in oats as in either of the other two.

It also appears that the percentage of albuminoids in oat straw is 5.25 per cent less than in rye straw, .25 per cent greater than in wheat straw, and 4.94 per cent less than in corn fodder. While the comparative values of these grains may agree with our experience in their use, those of their straws will generally awaken surprise.

Now, let us look a little further and see what are the comparative requirements of each of the three cereals, oats, corn, and rye. According to Mr. Joseph Harris, every thousand pounds (air-dried) of oats and of oat straw contain

	Pounds of Nitrogen.	Pounds of Potash.	Pounds Phos. Acid.
In grain	19.2	4.4	6.2
In straw	5.6	8.9	1.9
	<hr/> 24.8	<hr/> 13.3	<hr/> 8.1

and that a crop of fifty bushels of oats (weighing thirty-two pounds per bushel) and one and a half tons of straw per acre will require a supply of 50.50 pounds of nitrogen, 36.54 pounds of potash, and 16.74 pounds of phosphoric acid from each acre.

These, at the common prices of twenty cents a pound for nitrogen, four for potash, and eight for phosphoric acid, will amount to \$12.90.

The crop, at forty-five cents a bushel for the oats and ten dollars a ton for the straw, will come to \$37.50, leaving to pay for labor, etc., a balance of \$24.60.

But it will be really greater than this, as the atmosphere and the soil will supply a considerable percentage of the plant food required. Theoretically, this statement is not far from correct. Practically, it is not so, as we shall be unlikely to realize the fifty bushels per acre. At thirty, however, the profit would be a fair one.

I think it will be apparent upon any careful calculation, that a good oat crop is a paying crop, but that, as in the case of every

other, the profit will vary with the return per acre. While fifty, forty, or even thirty bushels will be profitable, twenty will hardly pay the cost of raising, as the straw and grain will be as poor in quality as the yield is in quantity. With oats as with all other grains, maximum crops are generally the most profitable.

Oats have generally been considered an exhausting crop. How they compare in this respect with corn can readily be determined by comparing the requirements of the oat crop as just mentioned with those of the corn crop.

Fifty bushels of oats and one and one half tons of straw require 50.50 pounds of nitrogen, 36.54 pounds of potash, and 16.74 pounds of phosphoric acid.

The product of an acre in corn, say sixty bushels of corn and two tons of stalks, will require 72.96 pounds of nitrogen, 50.83 pounds of potash, and 41.02 pounds of phosphoric acid, or about 40 per cent more of nitrogen, about 30 per cent more of potash, and a little over 100 per cent more of phosphoric acid.

So that a good corn crop is more exhausting than an average oat crop. We must not, however, forget that the value of the latter (oats) as figured above is \$37.50 an acre, while the former (corn), at eighty cents a bushel for the grain and \$6.00 a ton for the stalks, will amount to \$60.00. Value for value, therefore, they are about equally exhausting of the plant food in the soil.*

VIII.

FERTILIZATION.

The fertilization of an oat crop is a matter attended with some embarrassment. Too rich a soil will give an undue weight of straw without a corresponding yield of grain. Too poor a soil can afford only a scant crop of light straw and light grain. In

* This will appear from a simple comparison of the value of the nitrogen, phosphoric acid, and potash in these two crops with the value of the crops.

Their value in 60 bushels of corn and 2 tons of stalks is	\$19.92
“ 50 “ oats ” 2 “ straw is	13.72
Value of corn crop as stated above.....	60.00
“ oat “ “	37.50

In other words, the value of the fertilizers in the corn crop is thirty-three and one fifth per cent of the value of the crop, and the value of the same in the oat crop is thirty-six per cent. So that the value of soil exhaustion by an oat crop very little exceeds the same by a crop of corn.

the former case the oats are liable to lodge and fail to fill well. In the latter the grain will stand upright, for the simple reason that it is not heavy enough to fall down. In neither case is the crop a satisfactory one.

The amount of manure required for a good crop of oats depends, of course, upon the condition of the soil. This may be such as to demand none at all. But this is but rarely the case.

An acre of good oats, say of one and one half tons of straw and fifty bushels of grain, contains of

Nitrogen, 50.50 pounds, worth at 20 cents . .	\$10.10
Potash, 36.54 " " 4 " . .	1.46
Phosphoric acid, 16.74 " 8 " . .	1.34
	<hr/>
	\$12.90

If the ground and atmosphere are in condition to afford these in the above amounts, it is evident that no fertilization will be necessary. If, however, it requires enrichment, the amount of this will depend upon the amount of plant food the soil unaided can afford. My own experience suggests that five hundred pounds of Bradley's X. L. Phosphate or its equivalent, applied to an exhausted soil, will not suffice. Twice that amount, affording

Nitrogen	28.66 pounds.
Potash	18.50 "
Phosphoric acid	104.50 "

costing, at \$35.00 a ton, \$17.50, might, perhaps, be sufficient. This would afford some six or seven times as much phosphoric acid as the crop could appropriate, and about one half as much nitrogen and potash as it must have. But whether sufficient or not, this could hardly be considered an economical application. Indeed, we may strongly suspect, until further experimentation demonstrates the contrary, that highly soluble, artificial fertilizers cannot be economically applied to an oat crop, except in formulas devised for that crop. It is pretty intricate and uncertain business for us common farmers to use exact percentages, particularly upon soils the exact conditions of which we may be unable to ascertain. I find, however, by rude experimentation on good

oat ground partially exhausted, that two cords and a half of good horse-manure, costing \$15.00, besides the expense of application, will secure under fair conditions a yield of from forty to fifty bushels per acre. If others here present have arrived at better results, I hope that they will report them before the close of this meeting.

IX.

WEIGHT AND VALUE OF OATS.

Different varieties of oats are valuable in proportion to their weights, which vary greatly, all the way from twenty to fifty pounds per bushel. Some of the Scotch oats reach the latter figure. So, also, do some of those raised by Oregon farmers.

In other words, the value of the oat kernel depends upon its amount of meat, and the heavy varieties yield more of this, proportionately, than the light ones. Says a writer in the last Census Report: "The strengthening or muscle-producing power of oats depends upon the amounts of their albuminoids, and, as a whole, the proportion of the albuminoids is greater in the heavy oats than in the light ones, amounting to but seven or eight per cent in some of the lighter varieties analyzed, and rising to more than fourteen per cent in some of the others."

Therefore, as oats are sold virtually by weight, the greater the weight of a crop, the greater, of course, will be its value. The legal weight of a bushel of oats varies in the different states all the way from twenty-six pounds in Maryland to thirty-six pounds in Oregon.* It is at once apparent, therefore, that it is for the farmer's interest to raise the heaviest varieties which his soil and climate will allow. In comparing different crops, the comparison should be between different weights rather than quantities raised upon equal areas.

Whenever the producer finds his oats growing lighter, he may

*The number of pounds required by statute in some of the different states and territories to make a bushel of oats is as follows: In Maryland, 26; in Maine, New Jersey, and North Carolina, 30; in California, Connecticut, Dakota, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin, 32; in Nebraska, 34; in Montana and Utah, 35; in Oregon and Washington, 36.

It appears, therefore, that 32 pounds is the general requirement, twenty-six out of the thirty-five states above named requiring that number.

be sure that it is time to be changing his seed for a heavier variety from a more favorable region ; just as the vegetable or truck farmers on the irrigated lands in the vally of the Po introduce new seeds as fast as their products deteriorate, and thereby maintain their standard.

X.

DIFFERENT METHODS OF RAISING OATS.

During the last thirty years I have tried several of the more common methods of raising oats, to all of which experience suggests objections of more or less importance.

I. I began by including oats as the second crop in the rotation prevailing in my locality, viz., corn the first year, oats the second, and grass the following six ; upon sod ground broken for the first crop, and manured with ten cords of stable-manure per acre. Two serious objections to this method were soon developed.

First, the oats, owing to an excess of fertilization, grew very rank, giving a heavy, weak straw which was sure to cripple or lodge before time of harvest. You all know what the cutting of a piece of heavy, lodged oats means — much slow, tedious labor, unsatisfactory stooks, and an amount of coarse straw of inferior quality, out of all fair proportion to the yield of grain.

Second. Seeding down to grass with this crop was found objectionable. The catch was unsatisfactory, owing partly to the shading and smothering of many of the tender grass stalks in their infancy, and partly to their entire destruction upon the spots occupied by the stooks during their period of drying. This method was therefore abandoned.

II. I next resorted to the other extreme, and sowed oats without manure upon exhausted sod land broken up the previous fall. A few years' experience demonstrated fully that a condition of soil which will not produce a good crop of grass will fail to afford a satisfactory yield of oats. This method, after a few trials, was also abandoned.

III. It had become apparent that when one has an individual on his hands who cannot live satisfactorily with any others, he had best be provided for by himself. Of late years I have cultivated oats as a special crop, and had better success.

My oats are now raised upon sod ground broken up in the fall, and in the following spring thoroughly pulverized and manured with two and one half cords of good stable-manure per acre or its equivalent, either plowed or harrowed in according to its fineness. In either event it is thoroughly disseminated throughout the seed bed. On my ground, this amount of manure, yielding about twenty-seven pounds of nitrogen, twenty-six of phosphoric acid, and thirteen of potash, added to the natural fertility of the soil, has sufficed. Upon this, oats are sown by a seed-sower at the rate of three and one half bushels per acre, and rolled in. They have been found to lodge far less than when cultivated as first stated, and give a fair return. My crop the past season, which encountered several short droughts, was raised upon ground consisting of dry ridges and moist intervening hollows. The latter probably gave something over forty bushels to the acre: the former, less than thirty. The piece as a whole measured up at thrashing just thirty-six bushels to the acre. This rather moderate crop was due in part to the unsuitableness of portions of the land for an oat crop. To the remark that one should not raise oats on such land, it may be said in reply that the farmer must use for his crops such land as he has.

I am aware that this method is open to criticism. My old neighbor, Mr. Richard Bradley, now dead, after a prolonged life of active experience and observation, was wont to say that he had never met but three perfectly honest men in his life, and that one of those was not quite honest. So of this last method, I would say that it is not quite satisfactory, but it is the best I have yet attained unto. Some of you, very likely, have got further on towards perfection in this work, and I hope we may hear from you in a few moments. Of this, however, I feel sure, that maximum crops of oats of the best qualities require, besides good culture, either a moist soil or a damp climate, and that they prefer both.

Early sowing—say from the last part of April to the first part of May in the central part of this state—of early varieties will secure early maturity of crop, and help towards an escape from rust. A good seed bed will promote rapid growth, and invite the rain and moisture to penetrate the soil, thereby rendering assimilable the plant food in the ground, and the maintenance of an uninterrupted growth.

There is sometimes an advantage in sowing, instead of one, a mixture of several kinds of oats maturing at or very near the same time. This comes mostly from the dissimilar habits of different varieties. Some shoot up in single stalks at considerable distances from one another. Others produce several stalks from each seed, and cover the ground more densely. If this be in good condition, the yield of grain on a given area is generally governed a good deal by the number of stems. These, too, when standing thick, help support one another, and are better able to resist the force of wind and rain. Thick sowing, also, in a measure, shields the ground from the sun's rays and prevents rapid evaporation of the soil's moisture.

This has not been a common practice with us, but the experience of foreign farmers has been such as to commend it, and I am satisfied that we shall do well to test it by our own.

The question as to the proper quantity of seed per acre for a crop of oats has given rise to much discussion, and opinions and practices have been various, ranging all the way from the extremes of from one to eight bushels. The object sought is to fairly cover the ground with the growing crop, and a moment's reflection must convince any one that the quantity should vary with the variety sown and the condition of the ground. If it be one which sends up few stalks, more seed will be needed than if it be a kind which produces many. At the same time it is useless to over-seed land in low condition in the hope of getting a good crop by an undue number of stalks.

It is impossible, therefore, to establish any rule of universal application. The cultivator must study surrounding conditions, and adjust the quantity of seed to these as well as he can. Common sense and personal experience will generally guide a man aright. After successive trials every season for the last thirty years, I have found that most of my lands require a seeding of about three and one half bushels per acre. Your better or poorer lands than mine, as the case may be, may vary a good deal from this quantity. One may just as well attempt to fix the quantity of water to be mingled with a glass of toddy without regard to the strength of the "rotgut" or the coating of the "toper's" stomach who is to swallow it, as to settle arbitrarily upon one fixed quantity of seed for an oat crop.

With us, oats are usually sown by hand. Machine-sowing, however, has been practiced to some extent during the last ten years, and for various reasons is the preferable way. The work is more quickly accomplished, and the quantity scattered can be more accurately gauged during the progress of it. If the usual area is not large, say not over eight or ten acres, a little hand-sower, costing five or six dollars, is all the machine required, and a man of ordinary capacity can learn its use in ten minutes. If, however, the areas are extensive, and particularly if it be desirable to sow phosphates as well, a larger machine operated by horse-power becomes necessary.

XI.

ACCIDENTS TO THE OAT CROP.

There are three serious accidents to which the oat crop is peculiarly liable, viz., drought, rust, and lodging. Fortunately, however, it is rarely subjected to all three of these in a single season. If it be pinched with drought, it will not fall down, and rust seldom deems it an object to strike a light crop. But whether these come singly or by twos or threes, their presence is objectionable, and should be avoided if possible.

1. *Drought.* — The best remedy I know of for drought is early sowing, a favorable soil, a deep seed bed of fine tilth, manured as highly as the crop will bear, and no higher. These conditions will secure all the moisture the rains, dews, and fogs afford. The crop will be well advanced early in the season so as to shield the ground and prevent rapid evaporation, while its early maturity will abridge the period of its exposure to the dry spells to which the summer may be subjected.

2. *Rust.* — I do not know that we can do very much to prevent rust. The use of the very best and most healthy seed may aid somewhat in this direction. In fact, anything favoring a vigorous and rapid growth is a protection. In the vegetable as in the human family, the individuals of most abundant vitality and strength stand all exposures best. Early maturing oats are, as a general thing, most likely to escape this pest of the oat field, and such varieties should be carefully selected.

3. *Lodging*. — The means just suggested will be found in some degree efficient for the prevention of the lodging of an oat crop. The pretty frequent change of seed with a view to raising the greatest weight of grain upon the least amount of straw may also aid somewhat in the effort to keep the straw upright until it is ready to cut. So, also, will particular care as to the sufficient and least sufficient fertilization of the field. Too heavy manuring, resulting in heavy straw, will be quite sure, by the aid of some shower attended by wind, to lay the crop as flat as the lily-pads of a muck-pond, thereby preventing the full development of the heads and seriously diminishing the promised yield.* If one would secure a maximum crop of oats he must give himself to a meeting of the requirements of that one crop, and not treat it as part of a rotation, or sacrifice its particular wants to those of others coming before or after it.

XII.

CUTTING AND CURING.

The methods of curing oats will vary with the character of the ground and crop. If the area be large, tolerably level, and smooth, an oat crop may be most economically cut by a horse-power reaper and binder. If the reverse is the case, we must depend upon the sickle, the cradle, or the scythe. The high price of labor has rendered obsolete the first of these. The difficulty of finding men knowing how to use it is displacing the second, and in many sections the mowing of this crop has already become the general practice. This requires no skilled labor, and the crop may be removed from the field in a short time after it is cut — an important consideration if the land is to be seeded to grass the same season. The straw, of course, will be left in a tangled condition, but this is an objection of little weight with persons who have their oats thrashed by a machine. In that event all straw is left in uniform condition after thrashing, whatever this may have been before it was cut.

The time of cutting will vary, of course, according to the pur-

* It is the practice of some farmers to sow a small quantity of rye with their oats. The stiffer stalks of the former are supposed to give additional support to those of the latter, while a slight admixture of the smaller cereal rather increases than diminishes the value of the crop.

pose for which the crop has been raised. If designed for forage simply, it should be cut while in the milk, and dried like hay before it is housed. If grain be the main object sought, it should stand until the straw is nearly dry, particularly if it is to be housed soon after cutting. If it is to be bound in sheaves and stooked, it may be cut while the piece is partially green, as the grain and straw will both ripen in the shock. The scattering of loose seeds over the ground, incident to the mowing process, will also be largely avoided by early harvesting.

I have generally found that when land is sown to grass immediately after the removal of a mowed oat crop, a new growth springs up and covers the tender grass plants. This, if thick, had best be removed before the frost prostrates it, lest it smother them.

The binding and stooking of oats can be neatly and well done, or done very poorly. If the sheaves be large and the stooks built solid, the oats will dry imperfectly and slowly. In this case, if the ground has been previously sown down to grass, this will be killed upon the spots occupied by the stooks. The sheaves, therefore, should be small, neatly bound, and so arranged as to allow a free circulation of air around them. Care in this regard will abridge the period of drying, the stooks will touch but a portion of the ground they cover, and the limited spots of grass killed or retarded in growth will be restored by or before the next season by the advances of the surrounding plants.

Stooks of various styles are common. The sheaves may be set up a short distance apart and in a circle, all sloping toward a common center, and neatly capped (Fig. 4).



Fig. 4.

Sometimes, when the oats are nearly dry enough for the barn, and the weather seems permanently fair, the bundles may be left



Fig. 5.

unprotected (Fig. 5), or be set up a few together without any cap, covered sometimes, perhaps, by a single sheaf laid horizontally upon the top of them (Figs. 6 and 7).



Fig. 6.

The more common way, however, and probably the better one, all things considered, is to allow four bundles standing six inches

apart in a line to slant against four others similarly placed at an inclination of some seventy-five or eighty degrees. After placing

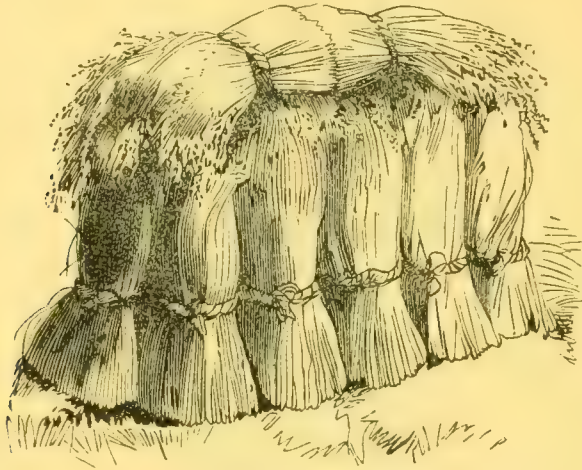


Fig. 7.

a single sheaf at each end of this collection, the whole may be covered with a neat cap formed of two inverted sheaves firmly bound together (Fig. 8). The ways of making sheaves are various,



Fig. 8.

and the best are those which most perfectly secure the protection and speedy drying of the grain.

XIII.

IS THERE ANY PROFIT IN RAISING OATS?

This question can generally be answered in the affirmative by the New Hampshire farmer. The amount of profit must depend, of course, upon the amount of his skill and energy, and upon the character of his ground and his climate. Almost anywhere in this state he can raise his oats at a less price than he can buy them.

In the central part of the state, where labor is high, the expense and return of an acre of oats on favorable ground are about as follows, viz. : —

Expense.

Breaking up one acre of sod ground	\$3.00	
2½ cords of stable-manure	15.00	
Harrowing ground and applying manure	5.00	
3½ bushels of seed, sowing, and rolling	2.40	
Cutting and housing	3.50	
Thrashing 50 bushels at 8 cts.	4.00	
	<hr/>	\$32.90

Return.

50 bushels grain at 45 cts.	\$22.50	
1½ tons straw at \$10.00 per ton	15.00	
Unexpended manure left in soil unknown		
	<hr/>	\$37.50
Profit		\$4.60

If it be urged that this is a small profit, it may be said in reply that on land worth fifty dollars an acre, this is a return of nine and one fifth per cent. This surely ought to pay a satisfactory interest and all reasonable taxes. The land is as safe an investment as United States consols, and the crop pays far better. Besides, by smart farming and favorable conditions, this return may be a good deal increased, while the expense of it may be somewhat diminished.

XIV.

OAT MEAL.

That conceited, intolerant, altogether disagreeable, learned, and glorious old fellow, Dr. Samuel Johnson, who lived in London and made the best dictionary of the English language ever made, up to his time; and who was as little partial to a Scotchman as he was to a clean shirt, defined oats as a "grain which in England is generally fed to horses, but in Scotland supports the people." "Yes," retorted the canny Scotch Lord Elibank, "and where else will you see such horses and such men?" This badinage occurred a hundred years ago, and oat meal has now become an important article of food for "the people" of England and America as well as of Scotland; and, to one who likes it, none can be more palatable, and certainly none can be more healthy.

We formerly got our oat meal from abroad, where the process of manufacture consisted —

1. Of kiln-drying the oats, that the shells of the kernels might the more readily be removed.

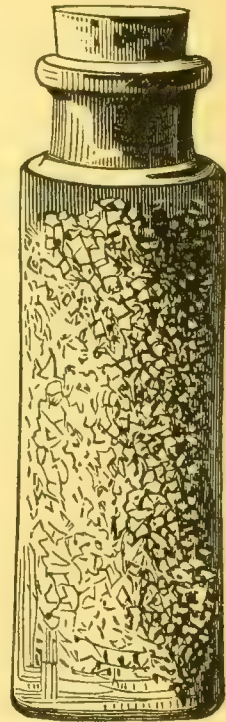
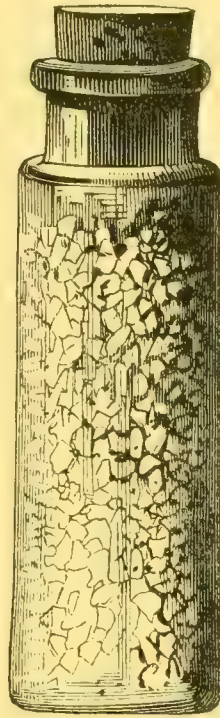
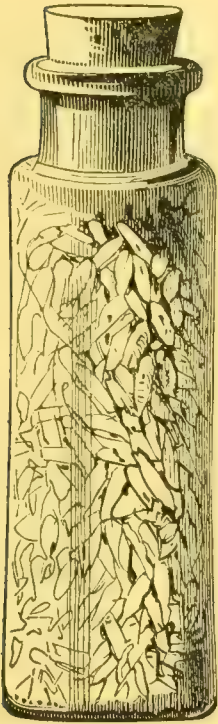
2. Of passing them through a mill where stones had been set sufficiently far apart to remove these shells from the meats within them by a kind of rolling process.

3. Of a sifting operation whereby the hulls and meats were separated from one another. This done, the latter were ground a second time, or not, according to the fineness of the meal desired, the coarser product being intended for porridge or "parritch," as the Scotch call it, and the finer for cakes.

But we are now making as good oat meal in the United States as is made in any part of Europe, and our processes of manufacture are not inferior to any in use abroad. Instead of restricting themselves to two, our American millers turn out at least three or four different kinds of meal, varying in fineness from the unbroken meats of the oat kernels down through successive grades to that of flour.

The three specimens I here submit to your examination (Figs. 9, 10, and 11) were found on sale at two of the Concord groceries, and more, doubtless, could have been collected had the

effort been made. But these suffice to illustrate what I have said, and persons wishing further information upon the subject can easily procure it. The specimen marked 9 is called "Pearled Oats," and is the coarsest variety manufactured, consisting simply of the unbroken seed with the hull removed. Those marked 10 and 11 are varieties in most common use.



The best oats yield about one half of their weight of meal, and from the meal standpoint are the most profitable for the farmer to raise. Very likely from every other the same may also be true.

The use of oat meal as an article of human food has largely increased during the last fifteen years. Hardly a grocer in our larger towns does not find it for his interest to keep a good supply of it in variety for his customers. As in Dr. Johnson's day, oats is still "a grain in England usually fed to horses," but is no longer restricted to these outside of Scotland. And, indeed, we can but believe that were the old fellow now living, he would

daily fill himself as full of oat-meal porridge, and with as much gusto, as he was wont to do with tea, when he had an opportunity, from Mrs. Thrale's teapot.

XV.

COMPARISON OF CEREALS IN THE UNITED STATES.

The whole number of our principal American cereals is but six, viz.: Barley, buckwheat, corn, oats, rye, and wheat. Rice is an important cereal, but its production is confined to but thirteen states. The relative importance of these, based upon acreage and production, is shown by the following table taken from the United States Census Report of 1880: —

TABLE.

GRAINS.	Acres.	Bushels.
Barley	1,997,727	43,997,495
Buckwheat	848,389	11,817,327
Corn	62,368,504	1,754,591,676
Oats	16,144,593	407,858,999
Rye	1,842,233	19,831,595
Wheat	35,430,333	459,483,137

It appears from this that in point of acreage Indian corn ranks first, occupying nearly twice the area of wheat, and nearly four times that of oats. If looked at from the standpoint of production, the same order prevails, the corn yield being almost four times that of wheat and more than four times that of oats.

It is difficult to realize the significance of the figures in the above table. If, however, we apply to them some large unit of measurement it may aid us in that effort. The area of the oat crop is 16,144,593 acres. Were the thousands of fields aggregating this amount gathered in one and laid down upon New England, it would cover all of New Hampshire, all of Vermont, all of Connecticut, all of Rhode Island, and lap over nearly a million (920,180) of acres on Massachusetts. A very respectable field certainly as regards size. If the four hundred and eight

millions of bushels, equal to 497,587,978 cubic feet, which constituted the oat crop of 1879, were collected in one rectangular pile upon an area equal to that covered by the national capitol at Washington, it would rise to a height of more than three thousand feet, or six times that of the Washington monument.

XVI.

COMPARISON OF CEREALS IN NEW HAMPSHIRE.

The relative importance of oats among the cereals in New Hampshire is seen by a glance at the following : —

TABLE.

GRAINS.	Acres.	Bushels.	Value.
Barley	3,461	77,877	\$ 70,089
Buckwheat	4,5	94,090	47,055
Indian Corn	36,612	1,350,248	1,147,710
Oats	29,485	1,017,620	457,929
Rye	3,212	34,638	54,513
Wheat	11,248	169,316	169,316
	88,559	2,743,789	\$1,946,602

Of a total acreage of 88,559 acres devoted to cereals, 29,485, or thirty-four per cent of the whole, are given to oats. Of a total yield of 2,743,789 bushels of cereals, 1,017,620, or thirty-seven per cent, were of oats. Of a total value of \$1,946,602, the sum of \$457,929 attaches to the oat crop.

As regards acreage, production, and value of crop, oats in this state stands second to corn only, a fact which suggests the climatic adaptiveness of all parts of New Hampshire to the requirements of this grain. While even corn, our leading cereal, flourishes but indifferently in some sections, oats is at home in all. In the valleys and along the streams ; upon the dividing ridges and tablelands ; at the level of the sea and three thousand feet above it ; everywhere, indeed, where useful vegetation is possible, from Indian stream to Massachusetts's line, oats are a reliable crop. And

for it there is a constant demand, which the farmers of the state but partially meet. Hundreds and hundreds of car-loads of oats come in from abroad to supplement our own deficiencies.

That the farmers of New Hampshire can supply these, without outside aid, there can be no reason to doubt. Our present average yield is but thirty-four and a half bushels per acre. Most of the varieties cultivated are of light-weights. Our oat acreage is less than three per cent of our arable area. The bestowal of increased thought and energy upon this crop, a considerable increase of its acreage and a wise care in the selection of seed, accompanied by an enterprising purpose to double it, would easily lead to the attainment of this end.

XVII.

AGRICULTURAL PROGRESS IN NEW HAMPSHIRE.

But not only as respects the oat crop ought we, as New Hampshire farmers, to make advances, but along the line of all the cereals as well ; indeed, of all the agricultural products with which we have to do ; of the root crops and grass crops, of the returns of our flocks and herds and dairies.

I have never despaired of the future of our New Hampshire agriculture. I have seen the populations of many of our farming towns diminishing year after year. I have seen farm after farm given up first to pasturage and afterward to forest. I have seen the product of many, still worked, growing less year by year, yet I have ever been confident of our future.

In the development of this great nation thousands of our best and ablest men and women have been called to other states to assist in laying there the same foundations their forefathers had helped to lay here. We have missed them, and their absence has been felt severely. Still, our dear old commonwealth has yet left to her sons and daughters just as good ; brains as active, eyes as keen, arms as strong, hearts as noble and heroic. To despair of our agriculture under the shadow of these fleeting clouds is to yield to a fear unworthy of our lineage, and to confess to a blindness as to what is transpiring all about us, of which we should all be ashamed. For the temporary dullness in the move-

ments of the great interest to which we are devoted is but the pause which always precedes transition, the preparation for a new departure, the taking of breath for a rise to a higher plane of life and enterprise.

During my agricultural life I have seen the mowing-machine and reaper appear for the first time in our fields to displace the scythe and cradle ; the wheel horse-rake, to substitute for tedious toil a pleasant recreation ; the hoe and clumsy spike-tooth harrow, slow in their imperfect work, yield to soil-pulverizers which do better work in half the time. I have had the pleasure to welcome the advent of the tedder, the manure-spreader and the seed-sower, which have changed the tedium of coarse labor to pleasant occupation. And just now we are all rejoicing at the coming of the sulky plow, upon which the farmer rides forth alone in the morning, and, after a short day's work, returns but little fatigued, leaving behind him in his field two acres of inverted sod as the result of his nine or ten hours' work. By the aid of this one implement he has broken up twenty-five per cent more ground in a day than he formerly did, and at one third of the expense. Surely, if any one has reason to bless the inventive genius which has done so much to increase the efficiency of the machinery employed in his occupation, it is the farmer.

But we must not forget that there is a moral progress, of far more value than any of a physical nature, which directs the latter and stimulates its activity. Our New England character has doubtless been a most important power in moulding for good the successive longitudinal belts of new states which from one decade to another have come into being upon our western frontier. Yet, the strength of this has been moral mainly, based upon intelligence, correct ideas of religious liberty and restraint ; clear convictions of right and wrong and of the personal obligations due from the individual to his Creator, to his neighbor, and to the state.

The strength of the state and the prosperity of its industries rest clearly upon the character of its citizens. It was their moral, and not their physical, power which enabled that little band of conscientious, liberty-loving men and women up in the valleys of the Waldensian Alps to defy for ages the assaults of the papal

power, until a united Italy called them down to the plains to establish everywhere, from the head-waters of the Po to the Strait of Messina, the great principles which they had preserved in purity to the appointed time.

Let us remember that we are not farmers only, but citizens as well, and a part of the state. The time is fast passing and, it is to be hoped, forever, when a tyrannical ruler can boast, "The state, it is I." The time is already here when its free-born citizens can say, "We are the state!" Let us read again, and thoughtfully, the words of Sir William Jones:—

"What constitutes a state?
Not high raised battlements or labored mound,
Thick wall or moated gate;
Not cities proud with spires and turrets crowned;
Not bays and broad armed ports,
Where, laughing at the storm, rich navies ride;
Not starred and spangled courts,
Where low-browed baseness wafts perfume to pride.
No! men, high-minded men,
With powers as far above dull brutes endued,
In forest, brake, or den,
As beasts excel cold rocks and brambles rude;
Men who their duties know,
But know their rights, and knowing dare maintain."

THE GARDEN FENCE.

IN the last report of the Massachusetts Board is a paper with this title, given at the meeting at Framingham, December, 1885, by Prof. L. H. Bailey, of the Michigan Agricultural College. "It is full of meat," and very suggestive of thought. We copy it, with full credit, with the assurance that nothing more valuable can be found to fill the space it occupies.

THE GARDEN FENCE.

BY PROF. L. H. BAILEY, JR., OF THE MICHIGAN AGRICULTURAL
COLLEGE.

Horticulture, the art, is old. It had its origin with twin agriculture, in the fertile valleys of Asia, while yet the world was new. Man early learned to till the soil. He was a farmer. The earth gave him her fruitage. He selected and improved it. Generation after generation the slow increment of progress accumulated. The fruits of the first garden gave place to others. Gradually the old were lost, and the best were scattered to the four quarters of the globe with the early migrations of men. The history of many of our cultivated plants is almost a history of the human race. But with the gift of fruits, God sent other friends, disguised. Weeds originated when cultivation originated. There are no weeds where there is no cultivation. They are enforcers of duty. They early punished neglect with the consuming growth of tares. They have always been coercers of improvement. It is singular that we do not recognize this fact. Even Virgil was alert to it: —

“The father of human kind himself ordains
The husbandman should tread no path of flowers,
But waken the earth with sleepless pains.
So pricketh he these indolent hearts of ours,
Lest his realms be in hopeless torpor held.
 . . . All these things he did
That man himself, by pondering, might divine
All mysteries, and in due time conceive
The varying arts whereby we have leave to live.”

Surely ours is a goodly heritage. Until our time has man improved upon nature, till the first parents of cultivated plants are lost, and we are bewildered with endless variety. If we cannot discover the devious path by which every fruit has come through the centuries, gathering here and there an element of that mysterious something which better fits it for the use of man, we can, nevertheless, enjoy an heritage which surpasses the hanging wonders of Babylon or the fabled gardens of the Hesperides. Perhaps we are approaching the limits of this development. Certainly our methods of cultivating are not essentially different from those which find record in Columella or in the verse of Virgil, methods which in essence were old when those authors wrote. The ancient art appears to have taken on a fixedness which is indicative of staid old age. We plow, and sow, and reap as did our fathers. If we reap more than they, it is chiefly because we have improved a little more in the line of their improvement. Surely here is not a field for the impetuous Yankee, who would conquer countries of which his father had never heard, who is irrepressible in any enterprise which promises profit, and demands business, brass, and brains.

In 1795 a short and unpretentious article on grafting appeared in the *Philosophical Transactions of England*. The writer had observed that in England the most disastrous of the diseases of the apple and pear was the canker, — a browning and dying of the younger shoots. It was the common opinion among orchardists that this disease is caused by a deterioration of the variety; the older varieties were running out. The writer opposed this view, and assumed that the disease had been conveyed, in each particular instance, by unhealthy scions. He conducted a series

of experiments. He procured healthy young stocks, and grafted upon them the brightest and thriftiest scions he could secure from the cankered trees. When these had grown, he inserted the best scions which they afforded on other fresh seedling stocks. This progressive operation was repeated for six generations. Although he did not escape the canker, he found that he had hit upon a fertile trail. He satisfied himself that scions from old and worn-out trees are prematurely productive and short-lived, and reasoning from this he concluded that scions from very young seedlings would prove to be tardily productive and long-lived. Numerous experiments appeared to prove the proposition. Scions maintain their essential characters when set upon other stocks, or at least the characters of growth and fruitfulness. The graft will probably not endure long after the natural expiration of the tree from which the scion was taken. Probably most of the ancient varieties of apples had been propagated from scions from old and feeble trees, and, as a consequence, most of these fruits known to Parkinson and Evelyn had become extinct. The direct and impartial statements, the scientific methods, and the novelty of the subjects treated, at once brought the paper and its author into prominent notice.

Four years later our author appears again. Again he is a pioneer. The canker in apple and pear trees still demands his attention. He had observed that in the animal world inbreeding produces disastrous results. May there not be something akin to this in the vegetable kingdom? He proposed to cross-fertilize one variety of apple with another, hoping from the seeds of the cross to secure new and healthy varieties. Impatient for results in a field entirely new, he began experiments with pease also. The progeny of the crosses were new and peculiar, and the details of the experiments are still full of absorbing interest. At this time the whole manner and method, the whole physiology of the phenomena of pollination and fecundation were unknown. Numerous doubts arose in the mind of the experimenter. He endeavored to ascertain if one seed could be the product of two males, if the quantity of pollen used exerted a varying influence, if the male or the female parent is the most potent, if successive crosses would still change the offspring, if the characters originating from

crossing can be discharged by subsequent culture. He experimented with apples, pease, wheat, grapes, and other plants. We who are familiar with the magnificent science which has to do with the crossing of plants, which first took definite shape and direction under the genius of Darwin, and which in its phenomena and influence is boundless, are fully prepared to admire those men who first caught a glimpse of this wonderful plan of nature. We look with a species of reverence upon Conrad Sprengel, who in 1787 began to study in the fields the mutual relations of flowers and insects, and who became impressed with the idea that all parts of the flower subserve some definite economy ; that "the wise Author of nature would not have created even a hair in vain." But in this same year, 1787, a greater man than Sprengel began his work upon the same subject. The German and the Englishman, unknown to each other, caught the thread of nature's purpose, and began to unravel her close-woven fabric. The one interrogated nature in the field, the other courted her in the garden. Our author, the Englishman, was impatient to apply to the common uses of life the discoveries he had made, although he recognized, perhaps as fully as the other, their importance to the preservation of species in wild nature. He saw, too, the relation of the insect to the flower. "Nature seems to have wished that no flower should be fertilized by its own pollen," said Sprengel, — a statement which has become celebrated. "Nature intended that a sexual intercourse should take place between neighboring plants of the same species," said our author, — a statement truer than the other. "Nature abhors perpetual self-fertilization," said Darwin. Our experimenter gives a pleasant account of the agencies of insects in cross-fertilizing plants. But after all he saw more clearly the relations of the phenomena of crossing to the much-loved plants of his garden, and ventured the assertion that "by this process it is evident that any number of new varieties may be obtained ; and it is highly probable that many of these will be found better calculated to correct the defects of different soils and situations than any we have at present ; for I imagine that all we now possess have in a great measure been the produce of accident ; and it will rarely happen, in this or any other case, that accident has done all that art will be found able to accomplish."

Among the flowers of his garden, our author became convinced that all the parts of the flower — the showy petals, the stamens, and the pistils — are but modified leaves. Although he was not the first to conceive these ideas, he nevertheless arrived at his conclusions independently, for the studies of Wolff and the poet Goethe were then unknown in England. Upon this apparently singular assumption rests much of the important investigation of to-day. He studied the motion of sap in trees, and made numerous experiments, some of which proved that the ascent of sap does not take place between the bark and the wood, but through the wood itself. In 1811 he gave to the world the now familiar method of root-grafting, with which he had experimented upon the pear, apple, plum, and peach. A year later he published a minute and interesting account of the movements of tendrils, a subject now made classic by the work of Darwin. About the same time he introduced a peach which he produced from an almond. In the same scientific and quiet spirit he discussed the causes which influence the direction of roots, the nature and extent of expansion and contraction in the trunks of trees occasioned by heat and cold, the parts of trees first impaired by old age, and a long line of vital subjects, always with well-directed experiments. In many cases he came near anticipating some of the beautiful generalizations which we now know as Darwinian.

But what is the significance of this work, and who is its author? Horticulture has become a science, and Thomas Andrew Knight is its founder! Science has climbed the garden fence. It is not enough that we plow and sow and reap as did our fathers. Unto us are given countries to conquer of which they had never heard. Here is work for the impetuous Yankee; work which is as boundless as time and energy. Horticulture, the art, is old; horticulture, the science, is new. To get our science from the field and the laboratory into the garden is the problem of the age. We must demand it there. Therefore, I propose to speak to you about the garden fence, or what we don't know about horticulture.

The fence which stands between theory and practice is relative. It exists and it does not exist. It depends upon the position of the observer, or rather upon his definition of the word practice.

This word practice is much abused. To one all knowledge is practical; it is a part of a grand scheme of progression, and, sooner or later, it exerts an influence upon some one or more of the varied industries which support the life of man. This is a philanthropic view of learning. It recognizes the important fact that all knowledge is practical, because it adds to the weal of mankind. Money is not always the true measure of the practical, else what is practical to the recipient is impractical to the giver. A person looked through a scientist's microscope; he saw the peculiar objects which were explained as the parts of a fungus, but he saw no application of the knowledge he had gained. "What's it good for; what's the use of all this study?" he asked with disgust. "It gets me a living, sir," retorted the scientist. We must not measure knowledge by its immediate effects, any more than we should measure an apple tree by the young seedling. But he who invariably measures the influence of education and knowledge by money is a niggard, and is opposed to advancement. It is time we did something for the fun of it. If we are to make science conducive to the needs of man, we must search all science, for we know not where some treasure is hidden. The horticulturist will quite as often find some useful hint in an inconspicuous weed by the roadside as in the cultivated products of the garden. It was by experimenting with a frog that Galvani discovered galvanism. That frog lives in every industry which brightens our civilization. It was a wild geranium which gave Sprengel the hint of that wonderful kinship which exists between the insect and the flower; and that wild plant of the fields will always linger in the traditions of our science and our horticulture.

One can never become a successful investigator in any subject if his whole skill and education are confined to that subject. Much of our experimenting is entirely worthless, because the experimenter is not able to grasp the relations which exist between his subject and other subjects akin to it. And herein lies the greatest gulf between theory and practice. Says an experimenter, Prof. W. R. Lazenby: "Nothing that is really good or true in theory can ever fail in practice. If failure occurs, it proves that the theory is false or the practice incomplete." It is

singular how loudly many men decry the opinions of scientists as vague and impractical theories, while they themselves are bristling with whims and notions that would do justice to the absurdities of the Middle Ages. If a thousand devils can dance on the point of a needle, how many stalks of chess will grow from one grain of wheat?

But after all, there is a conspicuous fence about the garden. The botanist searches for plants in woods and glades and fields; he studies them; he chases them to the garden fence and stops! When a raspberry gets into the garden it is without the pale of the true science of botany. "Our roses have ceased to be a botanical study," said a great botanist, when, in fact, they have never been worthy so close a study as now, when they have run into all the forms of our gardens; when they have so far disguised themselves as to make their very origins matters of speculation. Why have they varied, how have they varied, how much can they vary, what is their relation to soil, to light, to heat, to moisture, to pollination from other varieties or species—in short, what does botany tell us of the rose under cultivation? Nothing. We don't know the meaning of a rose; if we did, who knows but that we should find a key to many of the secrets of the vegetable world? The botanist throws it aside because it has lost its permanent specific characters; he cannot name and classify the perplexing multitude of forms. But the very fact that the plant is so perplexingly variable is all the more reason why the botanist should aid us in its study. Said Darwin: "One new variety raised by man will be a more important and interesting subject for study than one more species added to the infinitude of already-recorded species."

We must get below the surface indications. We need to know the principles which underlie our experiments before we experiment, or else we must experiment for the purpose of discovering the principles. Experiment is rife to-day; the empirical spirit of the age is contagious. Every one experiments or investigates.

The greater part of this experiment is the reflex—the echo—from the scientific tendency of the times. It commonly has little scientific basis and no permanent value. People are experimenting to find out what they ought to know without experimenting.

Every experimenter must know what experimenting has been done already. He must be an educated man. Experiments are often interpreted incorrectly ; they are said to teach what they do not teach. A person sows land-plaster on one half his wheat-field and leaves the other half unfertilized. Upon the plastered portion the wheat is four or five inches higher than on the other. Therefore, says Quizicus, plaster produces a great increase of wheat, not thinking, however, that growth of straw is one thing and yield of wheat another. A gardener had two rows of onions. Upon one he applied guano, upon the other bonedust. One yielded four bushels more than the other, and he attributed the larger yield to the fertilizer ; but under the same treatment they would, undoubtedly, have varied as much. An observing fruit-grower possessed a plant of smooth-fruited gooseberries. A favorite family cat, having unceremoniously died, was buried underneath the bush, and behold ! the next year the bush bore hairy berries, and has so continued to do until the present day ! Most of my neighbors keep seed corn by stripping the husks and braiding them together and then hanging the ears in a dry loft ; but one, more acute than the rest, one year hung his corn in a hoghouse, by way of experiment. The next year his corn failed to grow ; therefore, said he, corn hung in a hoghouse will not grow. This is akin to the valuable experience of a certain Irishman, to whom rhubarb was given in a case of sickness. He recovered. Shortly after, his neighbor, a Dutchman, fell sick, and Pat administered the rhubarb. The man died. Pat hastened home to write on the fly-leaf of his Bible : “ Medicine which will cure an Irishman will kill a Dutchman.” Surely, experiment is in the wind. Even the city editor has caught the contagion and writes : “ I am building up an article on potato-rot. What insect causes it ? How does the rot get in its work ? Is it more prevalent when cholera is raging ? ”

Of a surety, we need our botany and chemistry and zoölogy and meteorology in the garden. We need intelligent investigation. Moreover, we need extensive and extended investigation. If we need one thing more than another, it is that the botanist shall climb the garden fence and include within the realm of his science all the plants which we till. Even Knight made this de-

mand nearly a century ago : " I cannot dismiss this subject without expressing my regret that those who have made the science of botany their study should have considered the improvement of those vegetables which, in their cultivated state, afford the largest portion of subsistence to mankind and other animals, as little connected with the object of their pursuit. Hence, it has happened that, while much attention has been paid to the improvement of every species of useful animal, the most valuable esculent plants have been almost wholly neglected. But when the extent of the benefit which would arise to the agriculture of the country from the possession of varieties of plants which, with the same extent of soil and labor, would afford even a small increase of produce, is considered, this subject appears of no inconsiderable importance. The improvement of animals is attended with much expense, and the improved kinds necessarily extend themselves slowly ; but a single bushel of improved wheat or pease may in ten years be made to afford seed enough to supply the whole island, and a single apple or other fruit tree may, within the same time, be extended to every garden in it."

There are a few who have surmounted this garden fence at some of its highest points, and of these, none stand out so clearly as Charles Darwin, the grandest horticulturist of any generation, the man whose work pervades all scientific thought to-day. It is not the man who tills the soil who is necessarily the best horticulturist, it is, rather, he who knows nature best, and who can put his knowledge into form for others to use. A Darwin, although he never held a hoe, can do more for the permanent and profitable advancement of horticulture than all the horticulturists of New England. Out of this great wave of unscientific experiment which floods our land, we shall one day expect another Darwin to rise, who shall reveal to us more of the methods of nature than we can dream of to-day.

The art, the handicraft, of horticulture is well understood ; but every part of it which touches a science demands further investigation. We do not know the scientific principles which underlie these handicrafts.

Of the subjects of science which have been worked out, I know of none so thoroughly done as pear-blight. Indeed, the re-

searches of Burrill and Arthur, during the last five years, may be taken as the type of successful investigation regarding the diseases of plants. We hear much nowadays about parasitic fungi and their action upon the plants of our garden, and in many cases we can apply efficient remedies or preventives. We are inclined to regard the whole subject as one well understood, while, in fact, very few are so imperfectly understood. We have not yet been able to describe, to become acquainted with, the outward appearances of many of these fungi, and in comparatively few cases do we know the whole intricate round of life of the species. But we must soon begin to learn another set of facts; we must discover the relations which exist between the nature of the host plant and the aggressive fungus. Why is it that the red-rust always attacks the Kittatinny blackberry, while some other sorts are exempt? Why does the bean-pod fungus attack the white wax variety in preference to others? We say that one variety has a thicker epidermis than another; that it is a more vigorous grower and is, therefore, enabled to resist the attacks of the fungus; but these notions are indefinite. The fact is, we don't know why one variety resists a fungus and another does not. If we did, one of the problems of our horticulture at present would be the breeding up of fungus-proof plants upon scientific principles. If there is any attempt in this direction at present, it is entirely haphazard. Not many years since, the notion was entertained by many scientific men that the peculiar objects which we know as parasitic fungi were not distinct organisms, but simply modified cells of the diseased plant. We have now outgrown this notion; but we are, nevertheless, far short of solving the mysterious relations which exist between the fungus and the plant upon which it grows. We have emerged from one difficulty but to encounter another. The things which we do not know about horticultural science are astounding in number and importance, and they pertain to the commonest operations of the garden as well as to the most difficult and extraordinary. Let us examine, for instance, the simple matter of grafting and budding, which, so far as the art is concerned, is as well understood as tillage itself. It was practiced by the Romans. We bud our fruits as they did, but we know little more than they concerning the principles of the

operations. What do we know of the laws of affinity between plants, — laws which enable us to determine the limits of grafting? Some pears thrive upon the quince, some do not; but the quince does not thrive upon the pear. The pear is short-lived and unsatisfactory when grafted upon the apple, which is very near it in botanical kinship; but it does just as well, it is said, upon the thorn, which represents a distinct genus. The peach takes poorly on the apricot, but it and the apricot thrive on the almond and the plum. Most plums do well upon peach roots, but the Canada Egg commonly fails to unite, and the Lombard makes such an imperfect union that it soon breaks off; still, between these plums and others, we can discover no differences to account for these peculiar behaviors. Sweet cherries do well on the Mahaleb cherry, but the Mahaleb will not succeed on the sweet cherries. The gooseberry will not grow on the edible currants, but it thrives well on the wild buffalo currant of our West. A certain Chinese orange almost fails to bear upon its own roots, although it becomes very prolific when grafted on one of the lemons, a distinct genus. We know scarcely anything of the influence of stock upon graft, and we are unable to discriminate, in most of the recorded facts, concerning the matter, as to whether some change in the scion is produced by the stock upon which it grows, or by soil, climate, or culture. Still, the subject is one of immense practical importance. We may have a tree with plum roots and almond leaves, and the trunk may be composed of both peach and apricot, but we have no knowledge of the physiological relations which exist between the parts of this composite individual. We have a few facts concerning some indefinite influence which the scion exerts upon the stock. An experienced nurseryman habitually looks ahead, when he is digging trees, to note the character of the tops of the trees he is about to dig, knowing that a very upright grower will have a tap root, and a very bushy grower a spreading root. But the top is the scion and the root is the stock; how is it possible that the scion can influence the root upon which it grows? Many shrewd nurserymen tell us that if we graft a plum upon the young root of a peach, in a few years the peach root will change to a plum root, the identical fibers which were once peach become essentially plum in their external features. Variegation has long

been noticed to be an occasional influence of scion on stock. A stock with ordinary green leaves is sometimes forced to produce variegated leaves by inserting a bud from a variegated variety ; and this is all the more singular from the fact that the buds themselves often fail to grow. The stock may be influenced in this wonderful manner below the insertion of the bud as well as above it. If we attempt to explain this mystery we but unlock other mysteries. What is variegation? What causes it? Some contend that it is a contagious disease, and that budding is an inoculation. I find that so long ago as 1727, this idea was advanced ; for Prof. Bradley, of the University of Cambridge in England, observed, “that the distemper which shows itself in the yellow and white variegations of the leaves of the common white jessamine, and several other plants, may be communicated to every plant of the same tribe, by inoculating only a single bud of the variegated kind into the others which have plain green leaves ; and, though the bud does not live, yet barely by the application of it to the healthful tree, we shall find the yellow blotches or variegations of the unhealthful bud communicated to every part of the healthful plant. Just as it happens when a man has had the small-pox inoculated upon him, his whole mass of blood will become infected with the poison.” We are little wiser upon this point than Bradley was. Now, there is on record a case in which an entirely distinct plant, once regarded as a true natural species, was produced by grafting a scion of one species upon a stock of another. A hybrid was produced by grafting. Did we know how and why this came about, might we not apply the principle indefinitely? Now, we have the remarkable statement that a certain Italian, through long study and experience, has hit upon a device by which he can produce new varieties of roses by the simple art of budding. Whether or no this statement be true, it is, nevertheless, a straw which indicates a current. The more we study this apparently simple matter of budding and grafting, the deeper we are surrounded by an impenetrable maze of mystery ; we are everywhere limited by the unknown — unknown. I am not to be understood as saying that we have made no advancement in grafting. Columella declared that he could grow several kinds of grapes in a single cluster, by tying together cuttings from

four or five varieties, enclosing them tightly in an earthen tube, and burying them in the soil to grow together. In this manner he said that a compound vine could be produced, which would bear many-fruited clusters. He would produce seedless grapes by splitting his cuttings, removing the pith, and then placing them together again! He also detailed a device by which "scions of all kinds may be grafted upon all sorts of trees whatsoever." The Romans evidently had little notion of the affinity of species. Virgil would produce a curious medley:—

"But thou shalt lend
Grafts of rude arbutue unto the walnut tree,
Shalt bid the unfruitful plane sound apples bear,
Chestnuts the beech, the ash blow white with the pear,
And under the elm the sow on acorns fare."

We should expect that the horticulturists of to-day should not hold such notions as these; verily, there has been advancement, but for the most part it has been a stumbling advancement. Our Pegasus is blind.

Let us return to the botanist. Our curiosity is excited as we see him strolling critically over the fields, collecting-case in one hand, botany in the other. How does his botany help him in his rambles? Is it possible that he can identify all the multitude of forms of vegetation with names and descriptions? He can; and herein lies one of the wonders of botanical science. The classification and the method of naming are such that the diligent botanist can hold in his mind the names and the kinships of thousands of plants with no tax upon the memory. There is no system of arrangement so complete, no logical method of subordinating a lesser character to a greater so thorough, as the systems of classification and nomenclature which we apply to wild plants and animals. On the other hand, there is no system more bungling, none more thoroughly haphazard, than that which we apply to the plants of the garden. Is there not some way to get our classification and nomenclature over the garden fence? If the subject is beset with difficulty, so much the more do we need system, and so much greater will be his honor who constructs it. I hope to see the day when the gardener can botanize intelligently

in his garden ; I hope to see a handbook which will aid us in the determination of garden varieties. And this, you must admit, would be an exceedingly "practical" sort of a volume. It would endeavor to give us the synonymy of each variety ; it would tell us, before we make our spring order for seeds, whether the Leyden White Summer, the Satisfaction Black-seeded, the Black-seeded Yellow, the Fine Imperial Cabbage, and the Berlin lettuces, are in fact distinct varieties, or whether they are all names for one and the same thing. This is an exceedingly important matter, to find out if many of our common varieties are really distinct, and to hunt out the oldest name for a permanent appellation. It must be investigated with great care, and upon a scale not profitable for the individual gardener, who must live by the sweat of his brow. It must be investigated by persons who have trained eyes. In this direction the New York Agricultural Experiment Station is a pioneer in this country, so far as I know. Each year the Station garden grows some one vegetable in all its varieties, for experimental purposes. In the Station report for 1883, fifty-eight varieties of beans are accurately described and compared. Progressive horticulture demands that some efficient system of classification be worked out for each of our orchard and garden plants. It is by no means a satisfaction, if we wish to find the name of some apple new to us, to be obliged to know the name before we can find the name in an alphabetical arrangement.

We must learn the possibilities of native wild plants. It is in this direction that we must look, in many cases, for increased hardiness and productiveness. Our Wild Goose and Miner plums indicate a new field for advancement in plum culture. Our wild black currant and dwarf sand cherry are awaiting investigation. We must breed the bitter lining out of the pecan and the big seeds from the papaw. We often account it a fortunate circumstance that the cradle of the human race was rocked in southwestern Asia, the home of fruits, the land which flowed with milk and honey. But if the Garden of Eden had been in America, our heritage would have been as great, perhaps greater. The possibilities of our wild fruits as a whole are great. Already our gardens are planted with native grapes, native strawberries,

native raspberries, native blackberries, and native cranberries. The native species are by no means all utilized. A fertile field of future experiment will be the growing of edible fungi. Many wild species are agreeable and wholesome, but so far we have succeeded in cultivating but one, the world over.

Gardeners are familiar with "sports," those occasional mysterious plant forms whose advents are unknown until they suddenly appear. The phenomenon itself of sporting is known of late, since the work of Darwin, as bud variation, a term of great importance to the gardener, as malaria is to the doctor, since it covers volumes of ignorance. Cherry trees which habitually bear red fruit sometimes produce a branch which bears white fruit. Yellow plums have been seen on certain branches of a purple-fruited tree. Greening trees sometimes produce russet apples, and russet trees sometimes produce greenings. Potatoes are sometimes half white and half purple, and planting one side or other of the tuber will often reproduce the peculiarity of that side. Weeping branches appear on trees of upright growth. Variegated or curiously cut leaves appear suddenly on many plants. Plants so unlike all others as to be called distinct species have originated by bud variation. In this manner the moss-rose probably originated, and certainly the nectarine is a sport from the peach. We know nothing of the causes of bud variation. We shall expect to some day discover many and diverse causes for these fitful phenomena. Did we know these causes now, we might apply them to the production of better fruits. Sport is certainly a relative term. It is a sport to-day, because we do not understand it; to some horticulturist of the future it will be but the operation of a law.

We sow with the confidence that like produces like, that as we sow so shall we reap; but the keen observer sees in the offspring of almost any seed, when sown in considerable quantity, a wide variation. Indeed, no two individuals are alike, although they spring from seeds grown in the same fruit. Plants have individual characters just as clearly pronounced as do people, and so imperceptibly do these characters widen in all directions that we cannot say when any character ceases to be individual and becomes varietal; that is, common to a number of individuals; or

even when it becomes specific or permanently common to a class. Thus it happens that characters which are in the judgment of one man varietal are in the judgment of another specific, or may be even individual. "Species are judgments," said a great botanist; and, necessarily, he who has the best judgment and the most experience is the best judge of character in plants. Such judgment is of supreme importance if one would enter the higher fields of modern horticultural research. Often the seeds from the same pod will produce plants very different in their characters; the seeds "break," as the gardener phrases it, and we get what we call new varieties. Why? We say that it is due to peculiarities of soil, of culture, of climate, of some previous influence of pollen, or something. Surely it is due to something; so far we are correct. Reasoning from this known tendency of plants to vary, people often construct curious notions, which lie entirely without the limits of possibility. These limits are readily distinguished by the botanist, but cannot always be detected by others. Here we find an explanation of those antagonistic notions which have been a feud between the farmer and the botanist; the notion on one side that wheat turns into chess, and on the other side that the supposition is absurd. It is curious to what extent this ideal transmutation of species is often carried. As early as 1747 a Latin dissertation, written under the direction of the learned Linnæus, was published in Europe, to disprove the fallacy that wheat turns to chess. The notion has even an older history than this. The idea that certain grasses regularly transform into each other is as old as recorded history. It is said that in early times the peasantry of Europe had discovered a regular series of transformations, due to poor soil, from wheat to rye, then to barley, then to darnel grass, then to chess, and finally to oats. And it was also declared that the reverse conditions of a fertile soil would evolve wheat from oats through the same intermediate plants! At the present day, and in portions of our own country, chess and clover degenerate into timothy, and horse-hairs grow into snakes! And the people who observe these unorthodox pranks of nature are often among the first to scorn the idea of evolution, which attempts to account for the instability of species in a scientific manner.

We secure new varieties of plants largely by random. This method is unscientific, and, to the student of natural science, is unattractive. We do not know the possibilities which lie in a seed. Sometimes seeds contain two embryos, two initial plantlets. It was once observed that two per cent of a lot of young osage orange seedlings were united twins; the seeds had contained two embryos or germs, and the young plantlets had grafted themselves together. A still more remarkable case is that in which two very dissimilar plants were obtained from one seed of a fuchsia, the double-embryo seed, in this case, being the product of cross-pollination. We do not understand the mysterious effects of soils upon young seedlings. Prof. Tracy, of Michigan, sowed pease of one variety in a row which extended from poor soil to rich soil. Upon the rich soil he obtained a new variety of pea which reproduced itself from seed. We say that strong soil was the cause; but the same thing would probably not occur again in many years, under conditions which, so far as we could judge, are exactly similar. We do not know why some varieties or species of plants are more variable than others. Some cultured varieties will reproduce themselves with remarkable permanency from seeds, others will not. These fixed varieties, those which come "true to seed," we designate as something more than varieties; they are races. We have a name for them, as indeed we do for most of the phenomena of nature; and I often think that there is a tendency to crawl under these technical names, and to applaud ourselves with the idea that we have picked the meat out of nature's puzzle. Seeds from the young plants appear to produce a better and more variable offspring than those from old plants of the same species. Dr. Van Mons, of Belgium, inspired by this fact, built for himself a permanent name in the science of horticulture. He selected seeds from the first fruits of young trees, especially from young trees of new varieties, and planted them. From the first desirable fruits of the seedlings obtained, he again selected seeds and planted, and so continued to do for several generations. Each succeeding generation fruited sooner than the preceding ones and produced better fruit, until about the fifth generation, beyond which there was no increase. The fifth generation of pears bore at three years from the seed.

Van Mons proved that by selecting seeds from these young plants, which are in "a state of variation," whose characters are not yet fixed by age, we shall rear the best seedlings. And here another question arises. If the characters of young trees are not yet fixed, will the first fruits be the same as those which the tree will bear in maturer years? Are the habits of the boy the same as those of the man into which he grows? We know that in many cases they are not. But here we find a fact that we should not expect from the conclusions of Van Mons; the first fruits of the tree, if they vary at all, are commonly inferior to the later fruits. Still these same inferior fruits give a superior progeny. Would it be possible by root-grafting scions from a seedling at different times during the first four or five years of its existence to secure different varieties of fruit? We shall try it.

Verily, we do not know the possibilities of a seed. We need well-directed, extended experiment. We need to plant very many seeds of every useful plant, under conditions as nearly alike and as much unlike as possible, and to make a numerical record of the peculiarities of variation. Do they vary most constantly in this direction or that? We may then be able to discover some law of variation.

In a general way, we have hints as to some causes of variation; but here, as elsewhere, we are obliged to cover our ignorance by a technical term. Certain conditions of vegetation attend certain climates, and we habitually refer those conditions to climate as a cause. This disposition by no means discloses a specific cause, however. Climate is ambiguous. In common usage, it includes latitude, heat, moisture, drought, winds, intensity of sun's rays, electrical conditions of the atmosphere, and other phenomena. We must analyze climate and study the effects of its component parts. Here is a field which is wonderfully fascinating, from the fact that it deals with problems of such magnificent proportions; it includes at once, within its scope, the whole world, with all its depressions and elevations, its currents and counter-currents, its land and its waters, its winds and its calms. It traverses every unknown country, under the lead of versatile Von Humboldt, the father of botanical geography; it visits the islands of the sea and climbs the awful ranges of the Andes and

the Himalayas. On the other hand, it recognizes every local distribution of heat and cold. We are becoming familiar with some of the results of a change in latitude and climate, but we can scarcely frame laws. When a vegetable is taken North, it usually becomes dwarfed. The average height of Indian corn in the Gulf states is twelve feet; in Canada, six feet. Compare our Yankee corns with the Southern dent. Many woody perennials of the South become herbaceous annuals at the North; castor-beans and cayenne peppers are examples. The apples of Northern Russia grow on bushes, rather than trees, which are planted in hills after the manner of corn. Aside from dwarfing, plants usually take on different forms as they are taken northward. The tops are lower and rounder. In lower latitudes, they incline toward a pyramidal or fastigiate shape. The lower branches of conifers are proportionally longer in Canada than in Carolina. There is evidently a greater tendency at the North for plants to sucker and to produce underground stems. Although northern latitudes induce dwarfing, the amount of leaf surface is proportionally larger than southward. As checking growth induces fruitfulness, we can readily understand that plants are commonly more productive northward, so long as the climate does not interfere with the health and maturity of the plant. As a rule, however, it appears that the fruit of any species increases in size as we go south, but the number of fruits to a given extent of plant surface is greater northward. A recent census gave the average yield of wheat per acre as 14.2 bushels in the upper ten Atlantic states, and 9.8 in the Gulf states, and 30.66 bushels of oats against 14.2 bushels. The latitude of the greatest productiveness of any plant is usually north of the latitude of greatest growth; *e. g.*, if a plant reached its greatest size at 40° , its greatest productiveness might be at 45° or 50° . If dwarfing produces fruitfulness, without producing serious concomitant evils, it is desirable; for while we may lessen the actual amount of production on each plant, we can grow many more plants to the acre. The increase in plants can be much greater than the decrease in individual production, but there must be a limit to profitable dwarfing. The most productive ratio of size of plant to the amount of fruit it bears is an important and entirely un-

solved problem. It has been stated that in England the most profitable ratio for wheat is about ten parts of straw by weight, to seven parts of grain. Given, the profitable ratio and that latitude where this ratio will be naturally developed, and we have the essentials of a great advance in intensive horticulture. Seeds could be distributed from the given station ; and even if we were not able to produce distinct varieties, which should possess this ratio as a permanent character, the seeds could be frequently distributed. We are gradually approaching this climax. Northern-grown seeds are now in great demand. This fresh stock, this change of seed, is of great importance in many respects, of which the feature I have detailed is perhaps the most important, though the least understood and most neglected. By selecting seeds from a certain locality we are enabled, with a great degree of accuracy, to secure the salient features of the plant in that locality. "The enhancing of any peculiar feature of growth may be done by bringing seed from a climate which has that tendency." Latitude, or some of the conditions of climate which accompany latitude, has a potent influence upon color. Northern fruits, like northern maidens, have ruddy cheeks. In old Russian song is a marvelous maiden whose neck was like a swan, whose lips were like cherries, and whose cheeks were as red as the Volga apples. The object and the figure are attractive. The beauty of Alpine flowers is proverbial. On the unfrequented slopes of high mountains, fringing the perpetual snows, are the prettiest flowers the world affords. In vain do we search for the cause. It is pleasant to entertain the proposition of Wallace, that these bright Alpine colors are usually gaudy advertisements to insects, which are rare upon high mountains. The reciprocal relations of flowers and insects are always absorbing ; but although the fact that Alpine flowers produce unusual quantities of nectar appears to uphold Wallace's hypothesis, we must nevertheless forego the pleasure of its entertainment. We find the same gaudy colors where insects are common ; moreover, we can produce them in short periods by a transfer of culture. Perhaps we are beginning to solve the problem in the recent studies of the intensity of sunlight at high altitudes and latitudes. As we learn more upon this subject, we shall undoubtedly be able to control to a great extent the colors

of our flowers. Indeed, Flahault had fourteen species of ornamental plants sown the same year in Paris and in Sweden, and of these, thirteen produced much brighter flowers in Sweden. The study of the intensity of sunlight will probably enlighten us upon the causes of high flavor in northern products, for be it known that high latitudes increase flavor in fruits; I am not able to verify here my above comparison in regard to maidens. We must know why it is that our apples and vegetables and corn are better at the North. It is lately asserted that even the watermelon, when well grown and thoroughly matured, is probably better at the North than at the South. If the world will still persist in accusing Brother Jonathan of trickery, it must, nevertheless, give him credit for honest, concentrated fruits. Hot climates develop poisons and aromas. Aromatic plants are characteristic of deserts the world over, says Wallace. I have in mind a pleasant incident of opening a bundle of dried plants which were picked twenty-five years before in the deserts about Palestine, and so strong was their fragrance that it filled the room with "Sabeian odors from the balmy fields of Araby the blest." The historic hemlock of which Socrates drank loses its virulence when grown in Scotland, and our sassafras loses its odor when grown in the cool summers of England.

Our studies of the relations of plants to climate must deal with acclimation, — a subject held in such different estimation by different observers that while the eminent Prof. Lindley has great hopes for its future, Peter Henderson declares that "a life-time spent in the practical study of horticulture has forced me to the conclusion that there is no such thing as acclimation of plants." Corn, for instance, does not succeed in England. This diversity of opinion may arise, in part, from different understandings of what acclimation is. To one, acclimation means an entire change, a revolution in the constitution of a plant, so that it can exist in opposite extremes of climate; to another, it means a series of minor changes, taking place gradually, so that the plant can be cultivated or become naturalized through small but constantly widening circles of differences. The first notion supposes no limits to acclimation. So far as I know, it is unreal. The second notion, that of gradual acclimation and naturalization, is

abundantly illustrated in every garden and by every roadside. It accepts the common observation that there are limits to acclimation. We cannot grow water-lilies on a sand-hill or corn in a damp and cloudy climate. We are not able to say whether we can induce some entirely new change or series of changes to take place, in order that the plant may become accustomed to some radical difference in climate, or whether we simply intensify or draw out some latent tendency to variation, which exists in the plant in wild nature. Of the fact of acclimation, however, there can be no doubt. Plants adapt themselves to colder climates. In fact, the dwarfing consequent upon transference to higher latitudes is itself an adaptation, from the fact that the plant requires a shorter season in which to mature. The individual character of the plant is, in some instances, mysteriously changed. It is stated upon good authority that twenty degrees below zero in Michigan is no more injurious to a given variety of peach tree than zero in Mississippi. We have numberless prophetic facts concerning acclimation, but of its possibilities we know almost nothing. Our science must climb the garden fence to solve the problem. It is possible that we must begin with the seed itself if we would acclimate. It has been thought that the reason why northern-grown seeds germinate quicker than others, in spring, is because the cold of winter produces in the seed an increased sensitiveness to heat and cold. Indeed, individuals of the same species were once kept, some in an ice-house, others in a warm cellar, and the former vegetated sooner and grew faster in spring than the latter. Upon this suggestion I am now experimenting with seeds, cuttings, and scions.

If we would fully understand the laws of variation of cultivated plants, — whether the variation is in the direction of acclimation or otherwise, — we must know the origin of the plants; we must know how they have varied in all previous times. The origins of many of our cultivated plants are lost in the mists of antiquity. They antedate civilization; they sprang from untaught nature, coincident with man. The primeval ancestors are lost. We search the records of every ancient people, and our perplexity is often rather increased than diminished. Sometimes history is altogether silent. How, then, can we know the unrecorded past?

If man, by cultivation, has evolved our plants from wild nature, why cannot man, by a reversal of that cultivation, breed back to the originals? The common radish is unknown in a wild state. When radishes become spontaneous, or self-sown, about the borders of the garden, they lose many of their valuable characters. Their roots become somewhat smaller, much tougher, and the aspect of the plant is changed. Three acute observers — botanists necessarily — observed that the variations of these self-sown plants are in the direction of a certain so-called wild radish, which is a weed in poor soil, along the Mediterranean and in some places on our own Atlantic seaboard. This plant has a slender, woody root. Thereupon Carriere, a French experimenter, sowed the seeds of this wild plant in the autumn in good soil. The plant found itself in a new predicament. It could not flower before winter came; and, with the elasticity of organization so peculiarly characteristic of natural objects, it formed a thick root, in which was stored nutriment for the growth which must be delayed until the next year. Seeds of these plants, and of their offspring until the fourth generation were sown, when Carriere found himself in possession of perfect radishes! Now we can picture to ourselves the first radish. Seeds of the wild plant became scattered to a fertile soil. They germinated in the autumn. Some person, more acute than his associates, noticed the sleek, thickened root and tasted it. It pleased him; he watched other plants like it; he sowed the seed. Many biennials, — turnips, carrots, parsnips, — sometimes “break” the first season. Instead of producing fleshy roots, they “run to seed.” This appears to be a reversion. Seeds from such plants commonly produce annuals instead of biennials.

The poet Goethe and Saint Hilaire proposed a law which states that when nature expends energy in one direction she spares it in another. There is always an equilibrium of force. There is a constant amount of coin in the treasury; and nature, the scrupulous manager, economizes in stocks when she speculates in crops. We need more proof of this statement; we need to know if it is a law. We are already aware that the number of seeds in a cultivated apple or pear are less than in the wild fruits; do the numbers and sizes of seeds decrease in proportion to increase of

improvement? Many fruits have become seedless; man has bred out of the plant the power of perpetuating itself. The banana is a familiar instance. We are familiar with the fact that checking growth induces fruitfulness. We produce fruit at the expense of growth. Old and decrepit apple trees often bear profusely, as if in the endeavor to increase their progeny with their last effort. Poor soil and indifferent culture often produce depauperate plants, and such plants usually blossom prematurely. The intelligent gardener is aware of this fact, and is enabled, in many cases, to produce a race or variety of dwarfs. Here is also a promising field for scientific experiment. Given this law, and we shall sow the smallest seeds, from the fewest-seeded fruits, when we wish to secure new varieties. Here the garden fence was first let down, so far as I know, by the New York Experiment Station.

Running alongside these curious facts are others still more curious. We know that a plant becomes variable when it is cultivated. In their wild condition plants are commonly in a certain state of repose. Grown for centuries under certain conditions, they have become accustomed to their surroundings, fitted into the niche wherein they have found themselves. Their characters become hereditary because they are not disturbed by surrounding objects and conditions. There is a sort of an interbalance between conditions and plants, and when these conditions are changed the probabilities are that the plants will change also. When the tramp got into clean clothes his conditions were changed, and he declined to sleep on the sidewalk. Some plants adapt themselves to new conditions more readily than others; they begin at once to vary in habit and character. Others show no change for some time, — for years, perhaps, — when suddenly they begin to vary, and their original identity may soon be lost. During the first years of their civilization they store up variability which will some day break out into forms whose name is legion. This phenomenon has been called the accumulative effect of cultivation, — a good enough name for an occurrence, a fact, for which we have scarcely a hint of a cause. The direction of variation we can determine largely for ourselves. Here, for once, does man lead nature; ignorantly, perhaps, but still leads. He

leads the plant in the direction of larger roots, sweeter leaves, finer fruits. He could lead more certainly and more rapidly if he knew the whys and wherefores, the bogs and the quicksands, the hard grounds and the mountains, which lie along his path. But with these greater changes come minor ones, which are in some way related to still greater ones which have not appeared. I wish to call your attention to the fact that as variability increases the pollen begins to vary ; that delicate, vital dust, which may float in a sunbeam, or which may be carried a thousand miles on the wings of the wind, is influenced by the behavior of the plant. We know little concerning this wonderful fact ; we have a hint which is snugly fenced about. It remains for some one to study, develop, and apply it. We cannot trace it to its end even in imagination. We do not know whether this is the first or the last of the phenomena of variation. We do not know if every successive generation varies more because the pollen which impregnated, fertilized the seed, varied more. In short, we do not know that this variable pollen does induce variability, although we suppose that pollen from a cultivated plant produces a more variable offspring than does pollen from a wild plant.

But what is this cross-fertilization, this cross-breeding, this hybridizing, which is in every one's mouth, and which flits as an undefined something before the eyes of the farmer of to-day ? It is nothing new ; its literature is voluminous ; gardeners will talk about it in the most commonplace and familiar manner. Its influence has been felt for a quarter of a century as a great tidal wave in the science of horticulture. It is simply transferring the pollen from one flower to another, and then sowing the seeds which result from the fertilization ; these seeds will probably produce plants in some manner intermediate between the two parents. This is the gardener's definition. It explains itself ; we understand it ; we have few or no doubts concerning it. The fresh graduate of the high school has finished natural philosophy ; he has learned by rote the definitions and the illustrations in Wells or Quackenbos. He knows it all. In all the book there are no doubts ; the statements are definite and positive ; there is nothing more to be discovered. Between the covers of our little volume lies all our knowledge of the motions and properties of

bodies, of the mechanics of levers and pulleys and wedges and screws, of the wonders of electricity and magnetism, of the laws which govern the weather and the features of the heavens ; it is all there. The graduate from the college has studied chemistry and mechanics and physics and electricity and meteorology, but his knowledge is unsatisfactory. He is impressed with what he don't know. His knowledge is relative and negative. He has got beyond the covers of the text-book. He sees every branch of his study widening and widening into infinity ; there is no end. We are frittering away our efforts on the surface of this wonderful sexual relation of plant to plant, and are contented if, perchance, we reap a result. The ancient farmer tickled the earth with a sharp stick, and was satisfied with his harvest : the farmer before me plows deep ; he subsoils ; he is never satisfied with his harvest. He succeeds best when he weaves no hit and miss into the acres of his farm. The gardener does not know the laws by which the warp and woof are woven into this mysterious fabric which binds plant to plant in sexual kinship. Said Lindley, a pioneer in horticultural science : "Hybridizing is a game of chance played between man and plants." An Englishman crosses his dahlias and sows the seeds. From 30,000 seedlings, he gets an average of ten good plants. Another calculates that out of 2,000 seedling cross-bred chrysanthemums, he gets, on an average, one good plant. In many cases the ratio of good plants to poor ones is much higher, and in a very few instances we can predict results with tolerable accuracy. Still, the matter is, at best, haphazard ; it is not scientific.

There are several degrees of crossing, as practised by man. A transference of the pollen from the anther to the stigma of the same flower is close or self-fertilization ; it occurs often in nature, but is rarely practised by the cultivator. If crossing takes place between different plants of the same species, as between a Baldwin apple and a Swaar apple, or a Marrowfat pea and a Tom Thumb pea, the product of the crossed seeds is styled a half-breed ; if it takes place between entirely distinct species, as the pumpkin and the squash, pea and bean, the product is a hybrid.

But now we must ask ourselves what a species is. We must define our definition. The botanist tells us that it is a plant

which, in wild nature, reproduces itself, or very nearly itself, from seeds for successive generations. The sugar maple, the apple, the quince, the dahlia are species. But the different sorts of sugar maples, — as the black, the curled, the birdseye, — and the different sorts of apples, quinces, and dahlias are not species : they are varieties ; some of more permanent and important character than others. Nature makes species, and also varieties, but man can make only varieties. But we have already seen that man can produce varieties which “ come true to seed ” : we call them races, but why are they not species ? Simply because man has produced them. Many of them we should call species in wild nature. It depends upon which side the garden fence we stand. If we are on the outside, we have a species ; if on the inside, we have a race. It is like a Chinese paragraph : if we turn it over, we must stand on our head to read it. The botanist claims the plant when it is a part of wild nature, but loses his interest when it becomes immediately useful to man. Is this a legitimate division of labor ? Is the scientist scientific ? Does a horse cease to be a horse when it is put into the harness ? But they tell us that the different races of cultivated plants — as, for instance, the Treadwell and Clawson wheats, the Yankee and dent corns — are not distinct enough from each other to be called species ; and, also, that if left to themselves, they will probably soon return into the species from which they sprang. Certainly, many of our races are just as distinct from each other as are many reputed wild species, and we have proof that many of them are just as permanent. What do we know of the fixity of wild species, anyway ? Scarcely anything. We have many artificial hybrids which, so far as we know, are just as distinct from their parents as their parents are from each other, which are just as fertile and which appear just as well fitted to fight out the struggle for existence. We do not know why these hybrids possess such and such characters — characters which are often wholly different from any which appear in the parents. We say that they date back in some mysterious way to ancestors. Then let us find out what the laws of this reversion are, that we may make other and better species. At present we cross similar species under apparently identical conditions, but we get different results. Why is

it? Is nature fickle, or is man ignorant? Hubbard squashes long grown in Framingham crossed with Hubbard squashes long grown in Framingham may improve our seed; but Hubbard squashes long grown in Framingham crossed with Hubbard squashes newly introduced from Michigan will infuse new life into our offspring. This crossing with foreign stock of the same variety is of wonderful importance. It is a principle as boundless in its influence as the science of horticulture itself. Its importance may be gleaned from the fact that, in one of Darwin's experiments, the height of foreign crossed stock exceeded that of self-impregnated stock as 100 exceeds 52, and in fertility as 100 exceeds 3. The principle is of universal application, and all honor is due to Darwin who gave it to us. We do not know even the limits at which plants can be crossed. Sometimes varieties of the same species cannot be crossed, while some species, or reputed species, cross most readily with other species. In short, we know none of the general laws of cross-breeding, and still we believe that there are such laws. If we must learn some of these laws by experiment, we must also learn some from untrained nature. Our woods and fields are nature's garden. For ages the provident mother has been working with winds, and waters, and insects, with soils and climates, to breed up and to breed out her plants. She presents to us a grand puzzle. We do not know whence her plants have come or whither they are tending. We do not know how many are hybrids, born from the beautiful marriage of the insect to the flower, how many are the children of a peculiar clime, how many had their origin in a recent century, or in distant geological time. We are groping, interrogating. Every question which is answered in the woods and fields is answered for the garden. One spirit pervades vegetation. We can scarcely draw a line between cultivation as practised by man and cultivation as practised by nature. "Our art," said Shakespeare, "doth mend nature, change it, rather. The art itself is nature." We must get outside the garden fence as well as inside it. We must demolish the line between science and practice. This is the new horticulture. Deep down in nature's heart, beneath the thorns and perplexity, truths are hid which are vital to the farmer and gardener. Then do not discourage the pursuit of science, how-

ever much you may have been taught to regard it as opposed to practice. Science is practice. All so-called popular and useful science must be founded upon recondite facts and principles. The more we know of nature as nature, the more readily can we understand nature in the garden.

We fail to catch the butterfly if we chase its irregular flight over the meadow, but the still hunt beside a thistle will bring us a captive. We cannot always reach the result at which we aim in experiment by a direct chase. We quite as often succeed by employing the still hunt of collateral evidence. The experimenter, then, must be a man of skill and learning in more directions than one. To reach the best results he must give his whole time and energies. The college professor, with his classes and his daily routine, can accomplish but little. We must delegate the work to the forthcoming experiment stations.

We commonly look upon the science of botany as affording few avenues for practical research, while we applaud to the skies the results attained by chemistry and entomology; but chemistry often fails just where we expect the greatest results. The chemist finds turnips to be composed largely of water, and declares that they cannot be profitable food for stock, but the old Scotchman, whose turnip-fed sheep are sleek and robust, knows better. The potato is three fourths water, but it is indispensable, because it presents a digestible bulk to the stomach. Chemistry cannot analyze the grip of a man's stomach. Of all science under heaven there is none more eminently practical than this same botany. Many people don't know what botany is. They associate it with the school-girl accomplishment, which aims to chase down a few plants to their Latin names, and to press them in a little book, which is sacrilegiously styled an herbarium. This work bears no more relation to botany than does a party platform to party practice. Botany teaches, not only what a plant is, but what it does and how it does it. There is one botany of names and classification, another of cells, another of the plant as a living and growing organism, and another of mutual relations to all environments. All these are given for the use of man, because he deals with plants in all their aspects. Even some botanists tell us that the botany of names and classifications — the botany of species —

is well-nigh finished, but when we have named and described every plant upon the face of the earth we must find out what a species is.

The garden is a puzzle. Every leaf and flower is an interrogation point. And why is this true, when we know so many facts in horticulture? Our experiment has been conducted by our so-called practical rather than scientific men. The end and aim of experiment has been to secure more profitable products, rather than to disclose the principles which govern the production of such products. Had we reversed these motives of experiment, had we endeavored to find the why, our horticulture would be much in advance of its present position. Do you understand me? Do you understand that it is more necessary, at present, to discover laws than to strive directly for better fruits and vegetables?

The difficulties in horticulture keep pace with the advancements in horticulture; the more we know the more we do not know. We shall experiment and investigate for a century; we shall solve the riddles of to-day; what, then, shall the horticulturist of the future investigate? We do not know what his puzzles will be, but we know that he will have puzzles. Science is ever new. It has no depth, no height, no boundaries; it stretches away into the infinite. We no sooner uncover one truth than we discover another. Man always anticipates his extremity of want, but never reaches it. Before we exhaust the coal and oil which mother earth has locked in her bosom, we grasp the electric current from the air. Before we shall exhaust our iron and copper we shall learn an easy method of extracting the silver from clay. Man shall always strive. Endeavor is a winsome goddess, who leads us through copses and along hazardous banks, but she never leads us to the ends of nature. The man who loves his garden, and who knows some of its secrets, is impatient for a fuller gratification. Some objects are near at hand and well defined, others are misty on the horizon. He tries to grasp them; they flit away like a pleasant dream; the prosaic garden fence is before him.

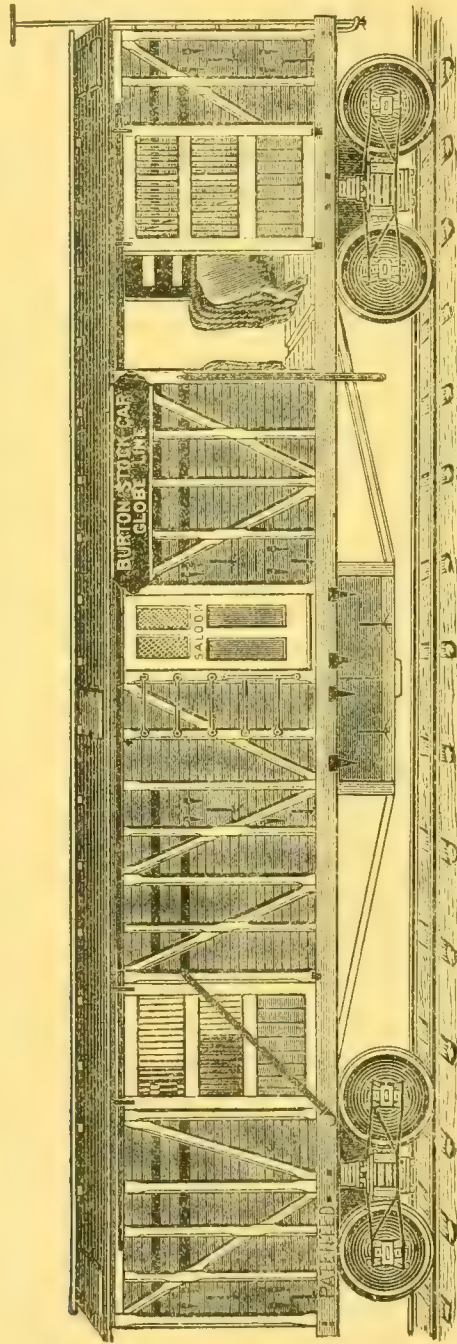
THE BURTON STOCK CAR.

ONE OF THE BEST AND MOST NEEDED IMPROVEMENTS OF OUR
TIMES.

It is a strange fact in the remarkable achievements made by the railroads of this country for the comfort and convenience of human travelers, that prior to 1882 there had been little or no improvement in the mode of shipment of live stock, which forms an item of such vast importance. The same method prevailed until then as existed when railroads were first built; and a very small portion of the people know what this "method" has been, and how it has been improved by the humane invention of the company whose name heads this article.

To present to our readers an adequate idea of the cruelty and extreme neglect to which cattle have been and are subjected while in transportation by the old method would be simply impossible. They are crowded into the car until not one more can be forced in, and then they are started on their journey. To say nothing of the violent bumping and knocking about they get while the train is "making up," the neglect to furnish proper food at proper intervals occasions intense suffering among the cattle, and it is only when the train is "side-tracked" for the convenience of the road, generally, that the animals receive food. Then the operation is but imperfectly performed, as they must be driven out to be watered and "jammed" back again; and should it not be convenient to those in charge to feed or water, it is left over till they stop again. The physical needs of cattle call for prompt and sufficient attention, when they are deprived of the free exercise of their own instincts in self-sustenance, and the amount of

suffering occasioned by this neglect cannot be realized. On the old plan, the attention must be inadequate. It has been clearly



THE BURTON STOCK CAR.

proved that packing cattle in the manner that style of shipment calls for is entirely detrimental to the health and good condition of the beef.

The frequent "proddings" by cruel and inhuman keepers often results in poisonous sores and malignant bruises, and the constant rubbing together of their bodies transmits the deleterious influences, and the consequences are incalculable. Then, if a steer is so unfortunate as to get down, through weakness, from disease, or lack of food, he is scarcely ever able to rise again, but is trampled under the feet of the rest, and many are thus horribly mangled and rendered unfit for slaughtering. Of course, all this is loss to the shipper. The poorer the condition in which cattle arrive, the less the shipper receives for them, and in the same proportion the consumer is obliged to pay an unfair price for an inferior article of food. The subject of the humane transportation of cattle has been one of deep interest, and has resulted in the invention of the Burton Stock Car, and the formation of the Burton Stock-Car Company, whose design has been not only to present a means for the humane treatment of cattle, but also to land them in Boston and the East in as good condition as when shipped. This they do; and ample evidence of the performance of all they claim is shown by the array of testimonials with which they have been favored, which include communications and indorsements from all the leading shippers throughout the West, and from nearly every point on the coast to which beef is shipped, from Maine to the Gulf. Backed by this evidence of the worth of their car, the Burton Company are confident that they have solved the complex problem of the proper transportation of beef on the hoof.

The car is so arranged that the cattle stand lengthwise instead of across, and is built to hold sixteen head averaging 1,500 pounds each, or twenty head of yearlings or two-year-olds. The animals are watered and fed without removing them from the car, and while the train is moving, the feed being carried in a receptacle for that purpose, and the water supplied by the same cranes that feed the locomotive. In every fifth or sixth car in a train of these cars is a specially apportioned apartment for the use of the attendants, and the many means of connection and easy communication between the various departments make it a comparatively easy task to attend them, and one man can do it in an amply efficient manner. The record of the company is really remarkable,

one of the feats being the shipment in three days of a load of stock from Chicago to Boston. These arrived in such excellent condition that, instead of being held to be brought up to the requisite standard, they were declared sound, and reshipped at once on board of the steamer. On another occasion this company shipped thirteen cars of blooded stock from Boston to Kansas City, via Fitchburg Railroad, the trip requiring only five days and four hours, and have evidence that they arrived in as good condition as when shipped.

EVILS OF TRANSPORTATION.

No great staple of interstate commerce has been subjected to more grievous exactions in course of transportation than cattle. From the time cattle began to be carried over rails to the present time there has been no improvement in the methods of carrying, no effort by the transporter to mitigate the sufferings of the animals, none to protect the consumer from the hazard of bad meats, and none to cheapen the commodity to the increasing millions to whom it is a daily necessity, or to protect the Western grower in his just profits. On the contrary, the whole business appears to have been given up as a prey to grasping rings, from first to last, by whom producer and consumer have been impartially fleeced, with the active aid and assistance of the common carrier.

In October last this company furnished to the Aztec Land and Cattle Company fifteen cars, to be loaded with the same class of cattle as the same number of common death-pens, and run between the same points. The following is the result, as reported by Mr. Erskine R. Merrell, of Walter C. Weedon & Co., Kansas City : —

“ The shrinkage in the common cars was 110 pounds per animal, which aggregates 79,200 pounds, and which at selling price, 23¼ cents per pound, equals \$2,178. Those in the Burton cars shrank 55 pounds as against 110 pounds in the common cars. These cattle were loaded promiscuously from the herd at Arizona into Burton and common cars, allowing the Burton cars forty minutes start, which was deducted at the end of the run. The saving in favor of the Burton cars was \$1,089 on this one shipment, besides gaining four entire days in point of time — that is,

the stock loaded in the Burton cars arrived at Chicago four days earlier than those loaded in the common cars. The stock in the Burton cars was in so much better condition as to have obtained twenty-five cents per hundred weight better price, making an additional gain of \$1,386, or a total net profit over the old stock cars on this one lot of cattle of \$2,475. The distance from Holbrook, Ariz., to Chicago, Ill., is 1,705 miles."

Naturally shippers, and particularly shippers of valuable stock, sought these cars so eagerly that the railroad companies were put to their wit's end to find excuses for raising the rates to a point high enough to prohibit their use. They would put on one day a rate which seemed sufficient to "snuff out the enterprise," only to find on the next that many shippers were still willing to pay it, and saw their profit in it. Instead of paying the mileage, as in the case of other "foreign cars," they taxed it both ways, empty and loaded. The Southwestern "Pool" solemnly adjudicated the matter, and determined that five cents a mile each way upon the humane cars was a very fair rate for a steady thing. An appeal to the Railroad and Warehouse Commissioners of Illinois brought a decision sustaining the Pool enormity. On one occasion the Union Pacific took a round \$610 on a single Burton car from Kansas City to Los Angeles, Cal.

The situation is this: If the cars were not discriminated against, if they were hauled whenever offered on the same terms as other foreign cars, the company would gather up the business just as fast as it could build cars to do it, and just precisely in that proportion would the business of the concatenated cattle rings decrease.

Repeated tests of the Burton Feeding and Watering Cars by intelligent shippers prove conclusively that from fifty to seventy per cent of this shrinkage in common stock cars can be saved, and the animals landed at market in a shorter time, and in so much better condition as to command ready sale at an advance of from fifteen to fifty cents per hundred more than like cattle bring on the same market shipped in common cars.

The passage of the interstate commerce bill will correct some of the worst of the abuses in this cattle traffic. It forbids rebates, and that would cut off the fifteen dollars per car to the eveners. It forbids discrimination, and that would, if fairly interpreted

and enforced, compel the railroads to haul improved cattle cars without delay and on fair terms. Still, the iniquities of the stock-yards would remain until the entire business of carrying cattle should be done on the new system. Moreover, any one reading the decision of the Illinois commissioners in the case of the Burton car will see how readily experts, bent upon discrimination, would find pretexts for evading a statute which merely forbade discriminations in general terms—as the interstate commerce bill provides—when applied to a question between common stock cars and improved ones, or between classes of the latter. For this reason, apparently, Hon. Martin L. Clardy, of Missouri, a member of the committee on commerce, has introduced a carefully prepared bill covering the live-stock trade exclusively and thoroughly. Such an investigation as that proposed by the Hopkins resolution would unquestionably result in a statute correcting the abuses in this traffic.

We cite the following as an example to give the public some knowledge of what the railroads of the country have done to bar the use of improved cars.

Mr. Allerton, the “Hercules” of the railroads, attempts to sustain the unjust discrimination of some transportation lines against improved methods of shipping live stock. He makes the false claim that shippers do not want feeding and watering cars, without giving the shippers an opportunity to express their choice.

At the National Cattle Convention held at St. Louis, November 28, 1885, and at the Denver convention, January 27, 1886, ranchmen and breeders from all states and territories were unanimous in their demands for improved cars, ninety-nine out of every hundred advocating the use of cars in which cattle could be fed and watered in transit without unloading; and for the purpose of preventing shippers using improved methods, the Southwestern Pool issued the following circular:—

[COPY.]

“CHICAGO, May 15, 1885.

“Until further notice, the following rules will govern the transportation of ‘Burton’ and other Palace Live-stock Cars:—

“1st. No mileage will be allowed for such cars in either direction.

“ 2d. Cars hauled empty, whether to point at which to be loaded, or returning after being unloaded, will be charged 8 cents per mile.

“ 3d. Live stock loaded in Palace cars not exceeding 30 feet in length, internal measurement, will be charged the rates provided for shipments in ordinary cars ; over 30 feet and not exceeding 33 feet, 10 per cent additional, and a further charge of 3 per cent for each foot or fraction thereof above 33 feet.”

Later a different ruling was made, fixing an arbitrary charge of 5 cents per mile on Burton cars, whether loaded or empty, amounting to \$25 excess each way.

The Excess Charges unjustly levied in this circular by the Southwestern Pool are more than 50 per cent above the regular tariff, for freight alone, for transporting cattle the same distance in common stock cars, which actually carry from two to four head more each than the Burton Feeding and Watering Cars. For instance, the tariff rate from Kansas City to Chicago is \$55 on a common car, which transports from 18 to 22 head of fat cattle. If, however, the shipper desires to save shrinkage and gain time in transit by using the Burton car, which is 38 feet long and has capacity for only 16 adult animals if tied, or 18 if loaded loose, he is required to pay \$60 per car freight, and, if said car be returned empty over Southwestern Pool lines, an additional charge of 5 cents a mile is levied, amounting to about \$25, or a total of \$105 per car ; whereas all other foreign stock cars are hauled at regular tariff, and a mileage for the use of same of $\frac{3}{4}$ to 1 cent per mile, each way is paid to the owners of said foreign loaded cars. The above mileage is paid also to refrigerator car companies, and from 3,000 to 5,000 pounds of ice carried free in each car.

If shippers do not want their stock transported in feeding and watering cars, why is it necessary to make this outrageous discrimination to render their use unprofitable to cattlemen ? A complete refutation of Mr. Allerton's assertion exists in the fact that the entire equipment of this popular line of Feeding Cars still continues in use, shippers maintaining that the Burton Stock Cars are still a source of profit to them, notwithstanding the additional charges of the Southwestern Pool for hauling them. Many trunk lines outside the Southwestern Pool recognize the fact that the railroad company's best interests are identical

with their patrons, and they haul these Feeding Cars for shippers at the same tariff as charged for other cars of equal capacity. If Mr. Allerton had said that the railroad pools do not want feeding and watering cars, he would have been correct; and the "milk in the cocoanut" is right here. These pools are all interested in the feeding stations and stock-yards, whose revenues are lessened by the use of feeding cars.

Again, the railroad companies receive just as much in freight charges for transporting stock in common stock cars, which cause so much loss and damage to shippers by shrinkage in weight, and death in transit, as they would be entitled to for hauling the same number of cattle in improved cars. The railroad companies receive also enormous profits from their feeding yards, hence what matters it to them how much shippers may lose by their defective methods of transportation; what do railroad companies care for the terrible sufferings of the helpless dumb beasts that arrive at market in maimed and feverish condition, many of them wholly unfit for human food? Yet they are slaughtered, their carcasses refrigerated, and the beef served up to innocent consumers, resulting in bowel complaints, blood poisoning, and disorders that follow its train. Consumers of beef want feeding and watering cars because they afford them sanitary protection, and lessen the suffering of the helpless animals. Shippers want feeding and watering cars because they avoid the risks incident to unloading and reloading at feeding yards, they reduce shrinkage to a minimum, and thereby largely increase their profits. The margins in the cattle business have become so reduced that shippers can no longer endure unnecessary losses in transit. Reliable statistics were produced at the St. Louis and Denver conventions, showing that about six millions head of beef cattle are annually shipped to market in the United States, on which the average shrinkage in transit is \$3 per head, aggregating \$18,000,000 absolutely wasted.

With the foregoing points in view, it will be unnecessary to say anything further in commendation of this perfect arrangement for the safe transportation of cattle, by which this company is fulfilling its humane mission.

The Company's offices are located at 194 Washington street, Boston, Chicago, Kansas City, and Washington, D. C.

SCIENCE AND EXPERIMENTS.

BY THE SECRETARY.

DURING the year there has probably been more work experimentally and scientifically performed in our state than ever before in an equal period. We may safely say, this is an age of "applied science." We are not content with abstract science. We have not full confidence in the dicta of mere scientists. We fear, in fact we know, there are agencies in nature that have not yet been fully measured by the devotees of science, that investigation must be pressed more thoroughly into all departments of agriculture before we learn the capacity of an acre of soil, a ton of hay or grain, the effects of feed, of cold and warmth on animal productiveness, or the utility of special combinations of chemicals and their adaptation to the varied soils which the farmer tills. We are making progress year by year, and one object of this report is to give annual records of the facts revealed, and by them measure our progress in the great farming interests of our state.

FERTILIZERS CONSIDERED.

Since our last report, we have caused to be made analytical examinations of nearly every special fertilizer used in the state. This work has been done, to some extent, at the College of Agriculture, but often by special manipulation by other parties with whom favorable terms could be made. In addition to this work, we have appropriated the results given by experimental stations. From these sources we are able to present a precise and nearly complete statement of the amount of chemical plant food in the fertilizers most in use. Knowing the market value of nitrogen,

phosphoric acid, potash, and whatever enters into the preparations, we can readily compute the trade value, and approximately the agricultural value, of the fertilizers that are reported. There is, however, a deficiency existing, unless we can have the means of learning from the analyses the source from which these elements are obtained, for nitrogen is more effectual and therefore more valuable when derived from one substance than it is if obtained from a different one. The same is true of potash and of phosphoric acid.

This may be determined at experimental stations, where ample facilities are afforded. These stations determine annually the ruling prices of these elements, and by concert of action base their computations upon them for the time, until there is a necessity for a revision. The scale of trade values, for the past year, of the fertilizing ingredients as raw materials, appears in the accompanying schedule:—

NITROGEN.							Cts. per lb.
In ammonia salts . . . . .	.	.	.	.	.	.	18½
Nitrates . . . . .	.	.	.	.	.	.	10½
Organic nitrogen in dried and fine ground fish . . . . .	.	.	.	.	.	.	17
Guanos dried and fine ground blood and meat . . . . .	.	.	.	.	.	.	17
Cotton seed, linseed meal, and in castor, from all . . . . .	.	.	.	.	.	.	17
Fine ground bone . . . . .	.	.	.	.	.	.	17
Fine medium bone . . . . .	.	.	.	.	.	.	15
Medium bone . . . . .	.	.	.	.	.	.	13
Coarse medium bone . . . . .	.	.	.	.	.	.	11
Coarse bone, horn shavings, hair and fish scraps . . . . .	.	.	.	.	.	.	9

PHOSPHORIC ACID.							
Soluble in water . . . . .	.	.	.	.	.	.	8
Soluble in ammonium citrate . . . . .	.	.	.	.	.	.	7½
Insoluble in dry ground fish . . . . .	.	.	.	.	.	.	7
In fine bone . . . . .	.	.	.	.	.	.	7
In fine medium bone . . . . .	.	.	.	.	.	.	5
In medium bone . . . . .	.	.	.	.	.	.	5
In coarse medium bone . . . . .	.	.	.	.	.	.	4
In coarse bone . . . . .	.	.	.	.	.	.	3
In fine ground rock phosphate . . . . .	.	.	.	.	.	.	2

POTASH.										Cts. per lb.
As high grade sulphate	.	.	.	.	.	.	.	.	.	5½
Kainite	.	.	.	.	.	.	.	.	.	4½
Muriate	.	.	.	.	.	.	.	.	.	4¼

Now, if the package is marked so that the source of the various ingredients is known, the value can easily be determined by the above table. Thus, suppose that there was 3 per cent nitrogen, and that it is derived from medium bone, then one ton would contain sixty pounds of nitrogen, at 13 cents per pound, or \$7.80. If there is 4 per cent of potash derived from muriate, then there would be eighty pounds, at 4½ cents per pound, or \$3.40. If there is 8 per cent of phosphoric acid derived from coarse bone, then there would be 160 pounds, at 3 cents per pound, or \$4.80, thus making the ton worth \$16.

The farmer, especially the doubting one, may say, "This is not satisfactory, nor reliable, for the reason that I know nothing about chemistry, and can't tell if I am paying too much for the income I shall reap from its use." But any farmer can learn to make the computation of the amount of any ingredient in a fertilizer when the per cent is given on the label accompanying the article. Then, having ascertained that, he may determine the value in a ton of each and every element. He may not be able to learn from the manufacturer's label the source of each element, and cannot, therefore, obtain the exact value, but let him take a medium value, like 17 cents for nitrogen, 7 or 8 for phosphoric acid, and 4 or 5 for potash, and he will come sufficiently near to answer his purpose. It is too complicated for him to go more definitely into the work, until state laws require a statement of the sources on the labels.

To be sure, the farmer will find that the same result will not follow the use of a fertilizer on different soils. But this is not a fault in the article applied. He will learn in time by experience that some fields do not need potash or some other element, and govern himself accordingly.

ANALYSIS OF FERTILIZERS.

	Nitrogen.			PHOSPHORIC ACID.								Potash.		Valuation per ton.			
	Water.	Found.		Guaranteed.	Soluble.		Reverted.		Insoluble.		Total.		Available.		Found.	Guaranteed.	
		Found.	Guaranteed.		Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Found.				Guaranteed.
Belknap's ground bone.....	5.00	4.52	4.41	0.00	2.67	0.0	19.44	0.0	22.11	24.0	2.67	0.0	0.00	0.0	36.09		
Bowler's fine bone.....	10.90	3.47	2.50	0.23	2.51	0.0	17.51	0.0	20.25	20.0	2.74	0.0	0.00	0.0	32.69		
L. B. Darling's fine bone.....	5.00	4.05	3.50	0.41	8.07	0.0	17.05	0.0	26.53	22.0	8.48	0.0	0.00	0.0	43.58		
Williams, Clark & Co.'s fish and potash.....	9.63	3.00	3.50	0.54	2.91	0.0	4.06	0.0	7.51	3.0	3.45	0.0	4.30	3.0	23.34		
Quinnipiac fish and potash, crossed fishes brand.....	26.45	3.65	3.25	1.75	2.93	0.0	0.32	0.0	4.98	5.0	4.66	3.0	3.28	3.0	25.90		
Bowler's fish and potash.....	8.30	2.64	2.25	3.08	2.86	0.0	4.44	0.0	10.38	3.0	5.94	0.0	4.98	4.0	27.85		
Church's fish potash.....	29.98	4.26	4.00	0.96	3.92	1.0	0.53	2.0	5.41	5.0	4.88	2.0	4.30	3.0	27.48		
Bowler's dry fish.....	11.00	8.05	8.00	0.70	2.63	0.0	4.51	0.0	7.84	7.0	3.33	0.0	0.00	0.0	38.51		
Quinnipiac dry fish.....	10.88	8.67	7.00	0.51	2.82	0.0	3.52	2.0	6.85	6.0	3.83	4.0	0.00	0.0	39.81		
L. L. Crocker's hop and potato fertilizer.....	12.10	2.99	2.00	5.94	2.10	2.0	1.01	1.0	9.05	9.0	8.04	8.0	5.06	6.0	29.92		
“ phosphate.....	14.48	3.07	2.90	7.29	1.14	2.0	1.00	1.0	9.43	9.0	8.43	8.0	1.60	1.0	29.11		
U. S. and Can. Co-op. Fer. Co.'s phosphate.....	10.63	2.05	1.25	6.32	2.13	0.0	4.09	0.0	12.54	0.0	8.45	8.0	3.20	4.0	30.08		
Whittemore Bros.' complete.....	21.05	2.68	0.00	6.08	4.31	0.0	1.68	0.0	12.07	0.0	10.39	0.0	3.20	0.0	31.55		
Dole's No. 203 fertilizer.....	11.13	3.27	3.00	2.62	3.08	0.0	5.13	2.0	10.83	10.0	5.70	8.0	3.98	3.0	28.90		
Soluble Pacific guano.....	14.03	2.17	2.00	6.90	1.83	2.0	3.30	2.0	12.03	12.0	8.73	8.0	2.04	2.0	27.53		
Darling's animal fertilizer.....	14.93	4.36	3.33	0.20	4.40	0.0	5.92	0.0	10.52	10.0	4.60	0.0	4.91	4.0	32.01		
“ potato manure.....	10.95	4.23	4.00	6.14	1.50	0.0	2.52	0.0	10.16	0.0	7.64	7.0	4.94	4.0	34.90		
Stockbridge corn manure.....	10.08	4.66	3.25	5.76	2.18	0.0	2.12	0.0	10.06	8.0	7.94	7.0	4.56	5.0	36.22		
Bradley's X.L. superphosphate.....	13.53	3.35	2.50	8.64	1.91	2.0	1.67	2.0	12.22	11.0	10.55	9.0	2.46	2.0	35.58		
Bay State b. superphosphate.....	22.43	2.99	2.71	9.08	0.15	0.0	1.01	3.0	10.24	12.2	9.23	0.0	0.84	0.0	28.86		
E. Frank Coe's phosphate.....	21.48	3.02	2.64	6.78	0.24	0.0	1.30	1.28	8.32	12.2	7.02	11.0	0.82	0.0	25.19		
Bradley's original Coe.....	12.95	3.07	2.05	8.23	1.90	2.0	2.41	2.0	12.54	11.0	10.13	9.0	0.30	0.0	31.09		
Quinnipiac phosphate.....	17.60	3.16	2.50	8.06	2.18	0.0	1.89	1.0	12.13	9.0	10.14	8.0	2.07	2.0	32.65		
H. J. Baker & Bros.' A. A. am. bone super-phosphate.....	9.78	3.60	2.50	10.46	0.83	0.0	0.34	0.0	11.63	0.0	11.29	10.0	2.14	2.0	35.21		

H. J. Baker & Bros.' complete potato manure	8.75	3.78	3.30	6.17	0.0	1.19	0.0	0.24	0.0	7.60	5.7	7.36	0.0	8.20	10.0	33.77
Mitchell's superphosphate.....	15.53	1.43	1.65	6.33	8.0	3.30	0.0	1.35	0.0	2.0	10.98	10.0	9.30	3.84	3.0	26.17
Bowker's hill and drill.....	16.28	2.77	2.50	7.90	8.0	2.63	1.0	1.81	0.0	2.0	12.34	11.0	10.33	1.41	2.0	31.90
Mapes's potato fertilizer.....	12.38	3.63	4.50	5.05	0.0	3.24	0.0	3.76	0.0	0.0	12.05	0.0	8.29	7.62	6.0	39.14
Mapes's complete manure.....	16.00	4.58	4.90	1.63	0.0	7.89	0.0	4.88	0.0	0.0	14.40	10.0	9.52	0.0	3.0	38.99
Williams, Clark & Co.'s am. bone superphos	13.03	3.04	1.65	9.76	6.0	1.86	3.0	1.01	1.0	12.63	10.0	11.02	9.0	2.51	2.0	35.94
Russell Coe's Co., am. bone superphosphate	15.05	2.28	1.65	4.86	0.0	1.78	0.0	4.68	1.0	11.31	10.0	6.64	9.0	1.66	1.5	24.97
Russell Coe's Co., soluble superphosphate..	10.05	0.71	0.00	4.80	0.0	6.24	0.0	6.20	2.0	17.24	12.0	11.04	12.0	1.58	1.5	27.43
Standard phosphate.....	5.58	2.80	2.50	2.62	0.0	5.96	0.0	3.10	2.0	11.68	11.0	8.58	9.0	2.41	2.9	28.87
Darling's animal fertilizer.....	9.46	2.80	4.00	0.45	0.0	5.15	0.0	9.74	0.0	15.34	10.0	5.60	0.0	4.10	5.0	30.41

PERFORMED FOR THE STATE GRANGE.

A committee of the Patrons of Husbandry, composed of Nahum J. Bachelder, Fred T. Stanton, and T. S. Pulsifer, caused experiments with fertilizers to be made, and the results given, not in bushels nor pounds, as will be seen, but the return was made in cash income for one dollar invested. Some of the profits are immense if correctly represented. See \$3.90 as the result of a single dollar in corn, or \$4.71 on the potato crop. Mr. Weeks ought to be a rich man. In case no figures are given, parties omitted the use of the specified fertilizer. No account is made of labor. If equal labor was given each lot, the test would be a fair one : —

EXPERIMENT BY.	Crop.	Bowker's Hill and Drill.	Pacific Guano.	Bradley's.	Bay State.	Stockbridge.	Buffalo.	Standard.	Corn, Chemicals, Muriate of Potash, and Sulphate of Ammonia in equal parts.	Ground Bone and Ashes.
George R. Drake, Pittsfield	Corn.	\$1.15	\$1.14	\$1.53	\$1.75	\$1.17	\$1.15	\$1.15	.....	.....
S. D. Weeks, Sanbornton.	"	.....	.....	.....	3.90	.....	.....	.....	.....	.....
Jesse Gould, South Weare.	"	.57	.34	.63	.63	.....	.57	.....	.....	\$0.03
Wm. T. Saunders, Epsom	"	3.08	1.56	2.08	.....	2.34	4.62	.....	.....	.....
Isaac Smith, Hillsborough.	"	1.08	1.10	1.23	.75	.....	1.25	.....	.....	.....
James Hayes, Dover.....	"	.90	.52	1.12	.....	.97	1.05	.....	.....	.....
A. P. Chamberlain, Dun-	"	.....	.....	3.75	.....	.....	4.86	.....	.....	1.08
barton.....	"	.....	.....	.....	.....	.....	.....	.....	.....	.....
E. G. Cate, Boscawen	"	.18	.54	.24	.66	.....	.....	.30	.....	.36
Fred T. Stanton, Strafford	"	.....	.....	.....	.....	.....	.....	.....	\$4.23	.....
J. W. Farr, Littleton.....	Potatoes.	.....	.....	.96	2.55	1.92	1.02	.....	.....	.....
S. D. Weeks, Sanbornton.	"	.....	.....	.....	4.71	.....	.....	.....	.....	.....
Lemuel Martindale, Cornish	"	2.46	.....	1.53	1.12	.....	.....	.....	.....	.39
Baxter Gay, New London.	"	2.87	3.62	.....	.....	.....	.....	.....	.....	.50

ASHES.

	LEACHED.		UNLEACHED.	
	Per hundred weight.	Pounds per bushel.	Per hundred weight.	Pounds per bushel.
Potash.....	1.19	0.66	6.51	2.60
Phosphoric acid	1.72	.95	1.98	2.80
Lime	31.00	17.05	37.75	15.10
Value per one hundred pounds.....	18 cents	.....	43.5 cts.	.....
Value per bushel	12 cents	.....	20 cts.	.....

Unleached ashes will average not far from twenty-five cents a bushel on the ground, and leached ashes may be called only about one half of that value — that is, leaching removes nearly one half their manurial value.

GEORGE R. DRAKE'S EXPERIMENT.

The soil was a dry loam. The subsoil was gravel. Gypsum was dusted over the soaked corn at planting, except in plot 11. The above tests were made in the middle of a three-and-a-half-acre field of inverted sod. No fertilizer was applied except as above specified. The corn was planted May 16, less than one day's hand-hoeing was done per acre, and the corn was weighed at harvesting on November 3.

Mr. Drake is a careful experimenter, but he ought, we think, to have reckoned the cost of preparing his night-soil, or he gives it undue credit.

No.	KIND OF FERTILIZER.	Quantity applied in the hill.	Cost of fertilizer per acre.	Yield of corn per acre in pounds.	Excess over the yield where no fertilizer was applied.
1.	Standard	1 oz.	\$ 5.00	2,713	763
2.	Night-soil compost.....	1 handful.....	.....	2,338	388
3.	Stockbridge, for corn.....	1 oz. ..	6.25	2,925	975
4.	Pacific guano.....	1 oz.	5.00	2,675	725
5.	Bone dust and ashes, Nichols's formula	1 oz. bone dust.	10.00	2,025	75
6.	Bay State	1 oz.	5.00	3,090	1,140
7.	Buffalo.....	1 oz.	5.00	2,700	750
8.	Bradley's XL.....	1 oz.	5.00	2,971	1,021
9.	Bowker's hill and drill.	1 oz.	5.00	2,725	775
10.	Corn "rolled" in gypsum.....	.....	.15	1,950	.....
11.	Nothing.....	.....	.....	1,861	.....

It would seem proper that the difference in stover should be regarded.

FEEDING-STUFFS ANALYZED.

Elements.	Corn Meal.	Hominy Meal.	Rye Bran.	New-Process Linseed.	Gluten Meal.
Water . . .	15.03	9.22	12.31	12.70	8.86
Ash . . .	1.45	3.12	4.35	5.14	1.01
Protein . . .	9.09	11.20	16.08	33.25	29.12
Fiber . . .	1.85	4.02	4.09	8.08	.86
Nitrogen-free ext.	68.86	62.88	60.15	37.19	53.91
Fat . . .	3.72	9.56	3.04	3.64	6.21

CLOVER HAY_c—1,000 PARTS SUBSTANCE.

	Red Clover.	White Clover.	Alfalfa.
Water	160.0	160.0	160.0
Ash	56.5	60.3	60.0
Potash	19.5	10.6	15.2
Soda . . . . .	.9	4.7	.7
Magnesia	6.9	6.0	3.5
Lime	19.2	19.4	28.8
Phosphoric acid	5.6	8.5	5.1
Sulphuric acid	1.7	5.3	3.7
Silica	1.5	2.7	1.2
Chlorine	2.1	1.9	1.1
Sulphur	2.1	2.7	2.6

It is found that there is left of roots and stubble in the soil ten inches deep, after the growth of the following-named crops, as follows : —

COMPOSITION OF ROOTS AND STUBBLE — POUNDS PER ACRE.

	Red Clover.	Rye.	Wheat.
Dry vegetable matter . . .	6,580	3,400	2,240
Nitrogen	180	62	22
Lime	246	69	72
Magnesia	46	14	10
Potash	77	30	17
Soda	19	40	11
Sulphuric acid	24	12	7
Phosphoric acid	71	24	11

ANALYSIS OF BRANS.

The following shows the difference between the old and the new process of milling, as shown at the Wisconsin Experiment Station : —

Water-free.	Roller Process.	Old Process.
Ash	7.11	5.59
Protein	17.64	14.79
Woody fiber	8.46	9.23
Nitrogen-free extract	61.54	66.12
Fat	5.25	4.27

It will be seen the roller process gives more of the valuable elements, as fat and albuminoids, than the old process. The old process has more of what are called carbohydrates, or the nitrogen-free extracts, as starch, sugar, etc. These are not as expensive as the flesh-making elements, but both are necessary to animal growth.

In Chicago, there is made a feed called "stock food cake." It claims to possess something like linseed and cotton-seed meal, combined with sugar, oil, and albumen. The combination is not made public, but it is said it contains no linseed. It probably includes bean meal, cotton-seed hulls, etc. The chemist at the station at Madison, Wis., compares it with new-process oil meal as follows : —

	Stock Food.	Oil Meal.
Water	12.30	10.51
Ash	6.67	6.06
Protein	33.94	33.45
Woody fiber	6.85	8.37
Nitrogen-free extract	34.53	38.78
Fat	5.71	2.83

It will be seen that the two articles are of nearly the same value. A mixture of bean flour or meal with cotton-seed meal in equal parts will give an analysis very near that of the "food." The addition of a few elements in such quantities may be the only difference; for example : —

	Bean Meal.	Cotton Seed.	Mixture.
Water	14.50	7.83	11.15
Ash	3.10	7.20	5.15
Protein	25.50	42.45	33.94
Woody fiber	9.40	5.67	7.54
Nitrogen-free extract	45.90	23.49	34.70
Fat	1.60	13.36	7.48

A BIG MILK RECORD.

Charles H. Hayes, of Portsmouth, is the leading Ayrshire breeder in the state, and is not excelled in milk-producers by any reported herd. He has just published the following record:—

NAME.	Herd Book No.	Age Jan. 1, 1886. Ys. Ms.	Last Calved.	Due to Calve, 1887.	Days Dry, 1886.	Milk—lbs. 1886.	Greatest Yield 365 Consecutive Days.	Remarks.
Queen Mary.....	6578	8	Nov. 26, '85	Dead	27	9,665 $\frac{1}{4}$	11,154 $\frac{1}{4}$	Died Nov. 30, 1886, of milk fever.
Lady Teazle.....	6579	7	June 28, '86	May	50	8,107 $\frac{1}{2}$	9,267 $\frac{1}{2}$	
Chinchilla.....	6589	4	Feb. 4, '86	March	36	7,972 $\frac{1}{4}$	7,972 $\frac{1}{4}$	
Cherry of Portsmouth.....	6585	4	July 27, '86	July	40	7,282	7,282	
Crocus.....	3400	12	July 17, '86	May	25	7,082	7,082	
Maid of Athens.....	4542	8	June 18, '86	June	7	6,905 $\frac{1}{2}$	6,905 $\frac{1}{2}$	
Claret.....	6586	4	May 9, '86	May	100	6,517	6,961 $\frac{1}{2}$	
Creole.....	6593	3	June 23, '86	January	101	6,608 $\frac{3}{4}$	6,889	
Crowfoot.....	6597	3	March 7, '86	February	130	6,092 $\frac{1}{4}$	6,203	
Eva's Girl.....	7309	3	Sept. 2, '86	August	44	5,528 $\frac{1}{2}$	5,558 $\frac{1}{2}$	
Fashion.....	6587	4	Aug. 10, '84	Farrow	33	5,412	5,744 $\frac{1}{4}$	
Clio.....	6583	4	Aug. 22, '86	August	33	5,369 $\frac{1}{4}$	5,369 $\frac{1}{4}$	
Diana.....		3	Dec. 22, '86	Not served	112	5,207 $\frac{1}{2}$	6,053 $\frac{1}{2}$	First calf.
Maid of Arles.....	8395	2	June 28, '86	June	31	4,959	4,959	
Frost.....	8397	2	March 3, '86	June	First calf.	4,711 $\frac{1}{2}$	4,711 $\frac{1}{2}$	
Mint.....	6592	3	May 11, '86	August	100	3,503 $\frac{1}{2}$	3,503 $\frac{1}{2}$	
Flossie of Portsmouth.....	6594	3	March 11, '86	February	120	3,121	3,121	First calf.
Dillias.....	8394	2	May 17, '86	April	First calf.	2,887	2,887	
Total.....					956	106,962	111,625	
Average.....					53 1-9	5,942 $\frac{1}{3}$	6,201 7-18	

FERTILIZER EXPERIMENTS.

[From the Manchester Union.]

HON. J. O. ADAMS, secretary of the State Board of Agriculture, inaugurated a series of experiments with fertilizers last season, and furnishes *The Union* with the results. The experiments were conducted by Mr. W. O. Smith, on the secretary's farm, and are reported as follows: —

CORN.

Soil, light, sandy loam, cropped annually with corn, rye, and clover, without animal manure; corn, small 8-rowed Canada. Experiments with different fertilizers, the value of \$16 per acre,—no allowance made for surplus unused, except in case of manure, when \$32 worth was applied, and one half charged to future crops,—showed the following results per acre. The plowing, planting, and harvesting cost \$8 per acre, the husking and shelling at ten cents for each shelled bushel: —

Lot.	Fertilizer.	Corn. bu.	Stover. lbs.
1.	No dressing	8.3	1,160
2.	Jefferd's	18.0	1,500
3.	Muriate potash	26.0	2,060
4.	Cow manure	26.3	1,800
5.	Buffalo	28.6	2,720
6.	Dissolved bone	32.9	2,450
7.	Dole's new corn senna	34.6	2,720
8.	Bradley's sea fowl	34.6	2,800
9.	Chemicals	38.9	3,280
10.	Bradley's XL	40.3	2,860
11.	Sal ammonia	43.5	1,880
12.	Cotton-seed meal	55.9	2,440

COST AND VALUE PER ACRE.

Lots.	Cost.	Corn Value.	Stover Value.	Total.
1	\$8.83	\$5.81	\$3.87	\$9.68
2	25.80	12.60	5.00	17.60
3	26.60	18.20	6.87	25.07
4	26.63	18.41	6.00	24.41
5	26.86	20.02	9.07	29.09
6	27.29	23.03	8.17	31.20
7	27.46	24.22	9.07	33.29
8	27.46	24.22	9.33	33.55
9	27.89	27.23	10.93	38.16
10	28.03	28.21	9.53	37.74
11	28.35	30.45	6.26	36.71
12	29.59	39.13	8.13	47.26

On this land it will be seen that, poor as the soil is, we can grow corn at a profit without manure, but we will not claim to continue it as a paying product. This is on our poorest land, having no manure for five or six years. On this soil, Jefferd's, a new article manufactured at Worcester, the loss was \$8.20 per acre. It may pay on other soils. Muriate of potash showed a loss of \$1.53. This land needs potash, but evidently it should be accompanied by ammonia or phosphoric acid in small quantities. Cow manure, made from ensilage, cotton-seed meal, corn meal, and shorts, shows a loss of \$2.22, why I cannot tell.

The Buffalo brought a profit of \$2.13. The Buffalo for potatoes, used on corn, made better response a year before than the general brands, but it was not tried by the side of others this year. Dissolved bone came in with a profit of \$3.93. Had potash been put with it, the product ought to have been much larger. Dole's fertilizer had a stigma attached to its name from a predecessor, known as the "Common Sense," which was a farce. This is Dole's new Common Sense. The profit on this was \$5.83 per acre. Bradley's Sea Fowl returned a surplus of \$6.09 over cost. Chemicals came in with \$10.29 to show. We believe in fine ground chemicals, applied as the farmer on careful tests finds the soil requires. We do not claim to have made the best combination.

Bradley XL, as usual, does well on this farm. Early in the season his preparation made the best show. The net income was \$9.71.

Sulphate of ammonia gave solid corn, but not heavy stover. The profit was \$8.36.

Cotton-seed meal, as in former tests, excels all. The income was \$17.67.

We have called the corn dry and recently shelled seventy cents a bushel, the price at which this variety will sell near by. We have sold for that at the ton. For the dried stover we have allowed one third the price of good hay. It is worth more than that when properly fed to young stock or milch cows.

POTATO EXPERIMENTS.

On the same farm by the same party, experiments were made on potatoes. This was on old ground that had been fairly manured and used for early crops for five years. It is very dry, but the drought had but little injurious effect on the crop this year.

The expense, not allowing for taxes or use of land, is put down as follows: Preparing land, \$3.50 per acre; seed, \$5; planting, \$3.50; fertilizer, \$25; cultivating and hoeing, \$5.50; digging and housing, \$10; total, \$52.50. We put the potatoes at fifty cents for good ones and ten cents for small ones—a low price:—

	Good. bu.	Small. bu.	Value.
1. Bradley's XL	250	41 $\frac{2}{3}$	\$129.17
2. Sal am. and potash with muck	223 $\frac{1}{3}$	45 $\frac{7}{8}$	116.94
3. Bradley's potato	225	52 $\frac{2}{3}$	117.77
4. Sea fowl	216 $\frac{2}{3}$	33 $\frac{2}{3}$	111.73
5. Clean muck	200	50	105.00
6. Nothing	191 $\frac{2}{3}$	68 $\frac{1}{2}$	102.68
7. Dissolved bone	185 $\frac{1}{3}$	52 $\frac{1}{2}$	97.92
8. Chemicals	177 $\frac{1}{2}$	41 $\frac{2}{3}$	92.92
9. Cotton seed and ammonia .	175	41 $\frac{2}{3}$	91.67
10. Sulphate of ammonia . .	166 $\frac{2}{3}$	37 $\frac{1}{2}$	87.09
11. Potash and sal ammonia .	158 $\frac{2}{3}$	45 $\frac{7}{8}$	83.92
12. Potash and dissolved bone .	154 $\frac{1}{3}$	33 $\frac{1}{3}$	80.44
13. Potash	108 $\frac{1}{3}$	50	59.17

“No dressing” gave \$75.18 profit. But this was due to previous cultivation, and we were surprised at the result. The

income above costs for the lot was, per acre, as follows: No. 1, Bradley's XL, gave \$76.67, or a trifle for the fertilizer, as no dressing gave \$75.18. Sulphate of ammonia, \$64.44; Bradley's potato, \$65.67; sea fowl, \$59.23; clear muck, reckoning the same value as phosphate, \$52.50; dissolved bone, \$45.42; chemicals, \$40.42; cotton seed and ammonia, \$39.17; sulphate of ammonia, \$31.42; potash and sulphate of ammonia, \$31.22; potash and dissolved bone, \$27.94; potash, \$6.67. The section on which the potash was used was the poorest, while that on which nothing was applied was the best.

THISTLES.

BY GRANT ALLEN.

[From Longman's English Magazine.]

THERE is no weed weedier or more ubiquitous than the common thistle. In paradise, it is true, if we may trust John Milton and the Sunday-school books,—wise, as usual, beyond what is written,—there were no thorns or thistles, the creation and introduction of the noxious tribe upon this once innocent and thornless earth being a direct consequence of the fall of man, and a stern retribution for Adam's delinquency. But since then the thistle has managed so to diffuse itself over the habitable globe that there hardly now remains a spot on earth without its own local representative of that ever-intrusive and conquering genus. Wherever civilized man goes, there the thistle accompanies him as a matter of course in his various wanderings. It adapts itself to all earthly environments. Close up to the Arctic Circle you find it defying the indigenous reindeer with its prickly wings; under an equatorial sky you may observe it accommodating itself most complacently with a sardonic smile to tropical existence, and battling with the prickly cactuses and the thorny acacias, to the manor born, for its fair share of the dry and arid uplands. Even nettles are nowhere in competition with it. In spite of its valuable and irritating sting, the nettle has not the plasticity and adaptability of constitution that mark the stout and sturdy thistle tribe. Garnered and harvested yearly with the farmer's corn, its seeds have been gratuitously distributed by its enemy, man, in all climates, and when once it gains the slightest foothold, its winged down

enables it to diffuse itself *ad infinitum* through the virgin soil of yet unconquered and unthistly continents. A field of thistles in England itself is a beautiful sight for the enthusiastic botanist (who has usually a low opinion of the agricultural interest); but in the fresh and fallow earth of New Zealand they attain a yet more prodigious and portentous stature, that might well strike awe and dismay into the stout heart of a Berkshire farmer.

The fact is, the thistle is one of those bellicose plants which specially lay themselves out, in the struggle for existence, for the occupation of soils where they are compelled to defend their leaves and stems from the constant attacks of the larger herbivores. On open plains and wide steppes, much browsed over in the wild state by deer or buffalo, and in the degenerate civilized condition by more prosaic cows and donkeys, one may always note that only the prickliest and most defensive plants have any chance of gaining a livelihood. Gorse and blackthorn form the central core of the little bushy clumps on our English commons, grown over thickly with bramble and dog-rose, or interspersed every here and there with occasional taller masses of may and holly. Nay, at times even naturally undefended species assume a protective armor under such special circumstances, as in the case of the pretty little pink rest-harrow, which grows close to the ground, with soft stems and leaves where unmolested by cattle, but quickly develops an erect and stiffly thorny variety when invaded by troops of cows or horses. In that case the unarmed specimens get eaten down in a short time by the browsing cattle, and only those which happen to possess any slight tendency in a prickly direction are left to occupy the stubborn soil and produce feed for the next generation. It is this unconscious selective action of the larger herbivores which has at last produced the general prickliness of all the plants that naturally frequent rich and open lowland pastures.

There are differences, however, between prickles and prickles. Some plants are positively aggressive, like the stinging-nettle; others are merely and strictly defensive, like the common thistle, whose proud motto, as everybody well knows, is "*Nemo me impune lacessit.*" In the very doubtful Latinity of the Licensed Victualers it goes in strictly for "*Defensio non provocatio*";

whereas the nettle, it need hardly be said, is often most distinctly provoking, and even goes out of its way to annoy a neighbor. This distinction I take to depend upon a difference in the acquired habits of the two races. The nettle is almost entirely a product of urban civilization. It hangs about the streets and out-houses of small villages, the neighborhood of farm-yards, and the immediate surroundings of rural man. It lives in constant expectation, as it were, of being browsed upon by donkeys, or trampled under foot by cattle, or picked by children, or stubbed up, root and all, by the ruthless farmer; hence its temper has become permanently soured, and it has at last developed a restless, feverish, wasp-like habit of stinging everybody who comes within arm's length of it. It is necessary to the safety of the nettle, in fact, that it should give you warning of its presence at once, and induce you to keep well away from it under pain of a serious and lasting smart. Our common English nettle, which grows everywhere along roadsides and waste places, is bad enough in this respect, but the smaller nettle — a foreign importation of more strictly civilized and urban habits, never found far from human habitations — is still crueller and more poisonous, while the South European Roman nettle, accustomed for innumerable generations to the fierce struggle against Italian civilization, has developed an advanced and excruciating sting, which beats the puny efforts of our own species into complete insignificance, as the virus of the hornet beats the virus of the hive-bee.

On the other hand, the thistle family are far more truly rural and agricultural in their habits, being denizens of the open fields and meadows, less dependent than the nettles upon richness of soil, and readily accommodating themselves to all vacant situations, hence they have only felt the need of arming themselves in a rough-and-ready prickly fashion against the probable assaults of their natural enemies. They have forged darts, but have not learned to poison them. Their prickly leaves and wings are amply sufficient for defence, without the necessity for developing a virulent juice to be injected into the very veins of their savage aggressors. Natural selection can never push any special line of evolution further than is imperatively called for by the wants and circumstances of the particular species. It always necessarily

leaves off just at the point where the protection afforded is fully sufficient to guard the kind from the possibility of extinction. The thistles have found in actual practice that prickles alone are quite enough to secure their boasted immunity from extraneous attacks. The nettles have practically discovered for themselves that without stings they would soon be landed in the final limbo of utter nonentity.

Circumstances have still preserved for us a very tolerable series of the successive stages whereby our existing thistles have gradually acquired their present prickly and repellent characteristics. In the good old days, while evolution was still fighting hard for public recognition, it used to be urged by the uninstructed outsider that we never found any "missing links." As a matter of fact, in ninety-nine cases out of a hundred the links are not and never were missing at all, and the practical difficulty is rather to establish any well-marked distinctions of kind than to discover long series of intermediate individuals. Just as the white man gradually merges into the negro by slow steps, when we cross Europe, Asia, and Africa, through Italians, Greeks, Levantines, Arabs, Egyptians, Nubians, Abyssinians, and true Soudanese, so the various kinds of thistles merge imperceptibly one into the other by innumerable varieties and natural hybrids. To be sure, there *are* such things as well-marked species in nature ; but there are also groups which it is impossible anywhere to split up into good and distinctly different kinds. The brambles, the wild roses, the St. John's-worts, and the epilobes absolutely defy regular classification : the thistles, though perhaps a little more amenable to the subtle arts of the artificial species-maker, still constantly glide one into the other by strangely graduated intermediate forms. The great *crux* really lies in the problem of the existence of such natural gradations ; for, according to the strict Darwinian principles, the better adapted and more specialized forms ought to crush out the intermediate types, and leave the species well demarkated one from the other by broad intervals. Probably the true explanation of the anomaly is to be found in the wide distribution and high adaptability of these dominant forms ; they can accommodate themselves exactly to such an extraordinary variety and diversity of situations, that special

intermediate types answer best in every intermediate soil or climate.

The most primitive and unarmed class of the thistle tribe is well represented by the saw-wort of our copses, a true thistly plant in all its general appearance and habits, but absolutely devoid of thorns or prickles. The leaves, indeed, are toothed and pointed, but the points never project into fierce spines, as in the more advanced kinds; and even the little scales that form a cup for the flower-head, though faintly stiff and sharp, are scarcely if at all defensive in character. The flower, of course, is usually the first part to be specially protected, because upon it depend the future seeds and the hope of coming generations of thistles. Just as instinct teaches female animals to fight fiercely and bravely for their young, so natural selection teaches menaced plants to arm themselves stoutly against the threatening depredators of their seeds and blossoms. The reason why the saw-wort and its unarmed South European allies have managed to do without the protective inventions of their more developed relations is no doubt because they live mostly in thickets and woody places, not much overrun by cattle or horses. Their neighbors in the open meadows and pastures have been compelled long since to adopt more military tactics in order to save themselves from premature extinction. Often, indeed, in a close-cropped paddock, you will find only two kinds of tall plant uneaten by the beasts—the meadow buttercup, preserved from harm by its acrid juices, and the creeping thistle, armed all round with its long rows of parallel prickles.

In the mountains of Wales and the north of England there is yet another kind of true thistle, classed as such by technical botanists (for the saw-wort is artificially relegated to a distinct genus), which is also destitute of prickles on the leaves, though it sometimes shows the first faint beginnings of a prickly tendency around the scaly flower-cup, and in the bristly teeth of its crinkled leaves. From this early stage in the evolution of thistledom we can trace the gradual steps in the defensive process, through thistles that grow with prickly leaves, and those in which the prickly margins begin to run a little down the stem, to those which have clad themselves from top to toe in a perfect mail of

sharp spines, so that it becomes quite impossible to grasp them anywhere with the hand, and they can only be eradicated by the hoe or plow. It is a significant fact that the most persistent and troublesome of all these highly developed kinds, the creeping thistle, now universally diffused by man over the globe, is a special weed of cultivation, far most frequently found in tilled fields, and seldom disputing with the simpler forms the open moors, mountains, or pastures. It does not trust entirely, like others of its kind, to its floating seeds, blown about everywhere as they are by their light tag of thistle-down; but it creeps insidiously underground for many yards together, sending up from time to time its annual stems, and defying all the attempts of the agricultural interest to exterminate it bodily by violent measures. This is the common and familiar pale purplish thistle of our English corn-fields, and there can be little doubt that it has developed its curious underground habits by stress of constant human warfare, especially with the plowshare. Thus the very efforts we make at fighting Nature defeat themselves; if we persistently hoe down the stems and leaves of an obnoxious weed, the weed retaliates by sending out hidden subterranean suckers, and the last state of the agriculturist is worse than the first.

On the close-cropped chalk downs of our southern counties there is another curious form, the stemless thistle, which shows in another way the hard struggle of Nature to keep up appearances under the most difficult and apparently hopeless circumstances. Among the low sward of those chalky pastures, nibbled off incessantly as fast as it springs up by whole herds of Southdowns, no plant that normally raised its head an inch above the surface would have a chance of flowering without being eaten down at once by its ruthless enemies. So the local dwarf or stemless thistle has adopted a habit of expanding its very prickly leaves in a flat rosette or spreading tuft close to the ground, and bearing its blossoms on the level of the soil, pressed as tight as possible against the short turf beneath. The appearance of these three or four dwarfed and stunted but big flower-heads, bunched thickly together in the middle of their flat leaves, is most quaint and striking when once one's attention is called to their existence;

yet so unobtrusive and unnoticeable is the entire plant that few people save regular botanists ever discover the very fact of its presence on the chalk downs. It is only one out of a large group of specialized chalk plants, all of which similarly creep close to the ground, while a few of them actually bury their own seeds in the soil by a corkscrew process, so as to escape the teeth of the all-devouring sheep. The power of producing a stem, however, is rather dormant than lost in the dwarf thistle, for under favorable circumstances and in deep soil it will raise its flowers eight or ten inches above the surrounding turf.

The question what particular plant ought to be identified with the stiff, heraldic Scotch thistle has long been debated, somewhat uselessly, it must be acknowledged, among botanists and antiquaries. For heraldry is not particular as to species and genus; it is amply satisfied with a general rough resemblance which would hardly suit the minute requirements of those microscopical observers who distinguish some forty kinds of native British blackberries. However, it has been amicably decided in the long run that the heraldic symbol of Scotland, that proud plant which no man injures unavenged, is not to be considered a thistle at all, but an onopord, a member of a neighboring though distinct genus, whose Greek name expressly marks it out as the favorite food of — how shall I put it with becoming dignity? — the domestic beast of Oriental monarchs. To what base uses may we come at last! The royal emblem of the north, as identified by Mr. Bentham and other profound authorities, is now at last settled to be nothing more nor less than the cottony donkey-thistle. North of the Tweed this identification should be mentioned, as French newspapers remark, under all reserves.

Almost all the thistles have purple florets, and purple, it may be safely assumed, is the primitive color of the whole thistle-head tribe. Some of them, indeed, fade off gradually into pink and white; but such reversion to a still earlier ancestral hue is everywhere common and easily brought about by stress of circumstances. The thistles in the lump are composites by family, and the apparent flower is really a flower-head, containing an immense number of small, bell-shaped, five-petaled florets, with the petals united at their base into a deep tube. The honey

rises high in the throat within, and is sucked chiefly by bees and burnet-moths, who form the principal fertilizers of the entire group. Purple is the favorite color of these advanced flower-haunters, and it seems probable that all the purple blossoms in nature have been evolved by their constant and long-extended selective action. Nothing can be more interesting than to watch a great burly humble-bee (one of the large black sort) bustling about from flower-head to flower-head of the pretty, drooping, welted thistle on a bright summer's day, with his proboscis constantly extended in search of food, and unconsciously carrying the pollen-grains about his head and legs from the florets of one blossom to the sensitive surface of the next in order.

After the flowers have been duly fertilized, the thistle-seeds begin to swell, and the down around them to grow dry and feathery. This down, so familiar to all of us among the autumn fields, has doubtless played no small part in the dispersal of the thistles. It is to their floating seeds (or rather, to be strictly accurate, their fruits) that the entire family owe a great part of their existing vogue and unpopularity. In almost all the composites the tiny calyx grows out into much the same silky down on the ripe fruit, but in hardly any other case, save perhaps those of the dandelion and the common sow-thistle, does it form so light and airy a floating apparatus as in the true thistles. Wafted about on the wings of the wind, the thistle-down is blown easily hither and thither, alighting everywhere, far and near, and finding out fresh spots for itself to root and thrive on every side. Not only does this plan insure the proper dispersal of the seeds, however: it also provides for that most important agricultural need, the rotation of crops. Long before scientific farming had hit upon the now familiar rotatory principle, hundreds and hundreds of plants in the wild state had worked it out practically for themselves under stress of the potent modifying agency of natural selection. For thistles can no more grow on the same spot for an indefinite number of generations than corn or turnips can; they require to let the soil on which they live lie fallow for awhile from time to time, or be occupied by other and less exhausting crops. Hence it follows that in nature innumerable means exist for favoring or insuring the dispersal of seeds; or, to speak

more correctly, only those plants in the long run succeed in surviving which happen to possess some such facility for constant rotation and occupation of fresh districts.

It is very interesting in this respect to compare the devices for the distribution of their seeds in some of the thistle's own nearest and best-known relations. The burdock, for example, is in flower and fruit almost a thistle, though it differs considerably from the thistles proper in its large, broad, heart-shaped foliage. But the burrs, or ripe flower-heads, instead of being surrounded, thistle-fashion, by a very defensive prickly involucre, have developed instead hooked points to their bracts, which catch at once at the wool of sheep, the legs of cattle, and the dresses or trousers of wayfaring humanity. In this way the entire head of seeds gets carried about from place to place, and rubbed off at last against a hedge or post (at least by its unwilling four-footed carriers), where it forms the nucleus of a fresh colony, and starts in life under excellent auspices, especially if dropped (as it is apt to be) in the immediate neighborhood of a well-manured farm-yard. Hence the burdock has no further need for the down which it inherits, like all its tribe, from some remote common ancestor; it has substituted a new and more practically effective system of transport *en bloc*, for the old general composite mode of dispersal in single seeds by a feathery floating apparatus. Accordingly, the pappus, or ring of down, though it still exists as a sort of dying rudiment on each fruitlet of the burrs, is reduced greatly in size and expansion, and consists of a mere fringe of short, stiff hairs, useful perhaps in preventing flies from laying the eggs of their destructive grubs upon the swelling seeds. In the common knap-weeds, again, which wait for a high wind to shake out their seeds from the head, this dwarfing of the down has proceeded much further, so that at first sight a careless observer would never notice its existence at all: but if you look close at the ripe fruit with a small pocket lens, you will observe that it is topped by a ring of very minute, scaly bristles, occasionally mixed with a few longer and hairier ones, which are all that now remain of the once broad and feathery down. Among the true thistles, on the other hand, which trust entirely to the gentle summer breezes for dispersal, and which float away often for

miles together, innumerable gradations of featheriness exist, some species having the down composed of long, straight, undivided hairs; while in others of a more advanced type it consists of regular feathered blades, barbed on either side with the most delicate beauty. Almost all our commonest and most troublesome English thistles belong to this last-named very feathery type, whose seeds are, of course, enabled to float about on the wind far more readily and to greater distances than the simple-haired varieties.

The thistle pedigree is a long and curious one. The group forms, apparently, the central and most primitive existing tribe of the composite family, and it bears in its own features the visible marks of a vast previous evolutionary history. Starting apparently from blossoms with five distinct and separate yellow petals, like the buttercups, the ancestors of thistlehood gradually progressed, as it seems, by insect selection, to a condition something like that of the harebell or the Canterbury bell, in which the petals have coalesced at their bases into a single large and united tube. Clustering together next into closely serried heads, like those of the scabious, the rampions, and the common blue sheepsbit, they endeavored to make up for the individual minuteness of their dwarfed flowers by the number and mass collected in a group on the summit of each stem. In this way they gradually assumed the distinctive crowded composite form, each floret consisting of a tubular five-lobed corolla, a calyx reduced to hairs or down, and single tiny seed-like fruit. Of this stage in the development of the family, the simpler and less specialized members of the thistle group, such as the unarmed saw-worts and the Alpine saussurea, are now the best surviving representatives. From some such early central form, the evolving composites split up and diversified themselves into all their astonishing and almost incredible existing variety. Some of them, varying but little in minor details from the parent stock, acquired prickly leaves and grew into the thistle kind, or developed hooked and sticky involucre, and were known as burdocks. Others producing at their edge a row of brilliantly colored and attractive florets, which serve the purpose of petals for the compound head, branched off into all the marvelous wealth of daisies, asters, sunflowers, mari-

golds, dahlias, golden-rods, ox-eyes, and cinerarias. In yet others the whole mass of the florets, central as well as external, has assumed this ray-like or strap-like form; and to this group belong the dandelions, hawk-weeds, salsifies, lettuces, sow-thistles, chicories, nippleworts, and cat's-ears. By far the most successful of all flowering plants, the composites have taken possession in one form or another of the whole world; and among the entire wealth of their extraordinary diversity there is no group more universally fortunate than the common thistle. What from the purely agricultural point of view we describe as a very persistent and almost ineradicable weed, from the higher biological point of view we should more properly regard as a dominant and admirably adapted species of plant. The one conception is merely narrow, practical, and human; the other is positive, philosophical, and universal.

APICULTURE.

BY ALLEN PRINGLE, IN SCIENCE MONTHLY.

AMONG the recent industries of rapid growth in this country, bee-culture stands prominent. Of course, as a homely art, bee-keeping is no modern industry, being as old as history; but in its scientific developments it is of recent growth. In these times, when science is properly taking its place at the helm in all departments of human industry and activity, it is not strange that it is promptly assuming the guidance of bee-culture. This is a utilitarian as well as scientific age; and this is why bee-culture is being so rapidly developed, for its extraordinary growth is only in the ratio of its utility. Though known to commerce for twenty-five hundred years, hitherto it has been followed and known, in this country at least, principally as a local industry. But bee-culture, from the soundest economic considerations, ought undoubtedly to become a great national industry fostered and protected by the state. Apiculture is naturally a part of, and closely allied with, agriculture, inasmuch as the nectar gathered by the one is immediately derived from the same fields and forests that yield the abundant ingatherings of the other. Indeed, the bulk of the honey-crop of this country (which is, in round numbers, about 100,000,000 pounds annually) comes from the bee-keeping which is in connection, more or less, with farming.

But this is not the principal reason why bee-culture must take rank as an important national industry. The postulate is fully warranted by the following fact or facts: When the agriculturist takes his grain to market, he takes with it more or less of the *fer-*

tility of his soil; when he takes his stock and dairy products to market, he does the same thing, only, perhaps, in a less degree. But, when he takes his honey to market, he does nothing of this kind,—he takes none of the fertile elements of his soil along with it. When the skilled apiarist, guided by science, so controls, directs, and manipulates his bees that they gather the rich nectar in tons from a given area, representing hundreds and even thousands of dollars, he impoverishes neither his own land nor that of his neighbor; he simply secures that which, if not gathered, “wastes its sweetness on the desert air.” Likewise, when a country exports its surplus grain or stock, it also inevitably parts with more or less of its fundamental agricultural resources; but its exported honey-surplus represents no corresponding impoverishment of soil. It would therefore seem clear that, from economic considerations alone, bee-culture ought to and must take its place among the most useful and important national industries.

Ladies of high culture and refined tastes are engaged (and successfully, too) in bee-culture with all the enthusiasm which is naturally inspired by a congenial and ennobling pursuit; and this is the best proof of our contention as to its æsthetic status. Being withal a healthful occupation, bee-culture invitingly offers itself to those in delicate health and not strong enough for hard physical labor. In numerous instances such persons, by engaging in this pursuit, have not only procured liberal means of subsistence, but have also recovered lost health and strength. The capital required is comparatively small, while the average return for skilled exertion is large. Hardly any other legitimate business yields so large a return in dollars and cents for the amount invested and the work bestowed. True, bee-keeping has its formidable obstacles and serious drawbacks; but these, while sometimes troublesome to the scientific apiarist, are disastrous mostly to the unskillful or negligent, or the mere neophyte. And even though the cargo of industry sink, not much treasure in money or labor is carried to the bottom, while a very little capital added to the valuable lesson of failure soon sets the redoubtable amateur on his legs again.

The honey-bee, — which belongs to the general branch of the animal kingdom called *Articulates*, and to the class *Insecta*, and

to the sub-class *Hexapoda*, and to the order *Hymenoptera*, and the family *Apidæ*, and genus *Apis*, and species *Apis mellifica*, — is one of the most intensely interesting studies in the whole domain of natural history. When the immortal Darwin had the scientific zeal and patience to study the apparently insignificant *earth-worm* for *forty* long years, leaving a field untouched for thirty years for the purpose of studying and observing the habits of these despised creatures, how comparatively easy and pleasant to study the honey-bee, which is so much more useful and beautiful ! The fact that the honey-bee is so much more serviceable to man than many others of the lower creatures whose nature and habits are equally wonderful, as the ant, for instance, invests it with a double interest to us. Insects which are pests, no matter how marvelous in structure and habit, we cannot study with that intense pleasure and interest we can those that yield so much to our physical as well as mental gratification.

Of the species *Apis mellifica* there are many varieties, — the principal of which are the Ligurian or Italian bee ; the German or black bee ; the Syrian bee ; the Cyprian bee ; the yellow, Egyptian bee ; the amiable, Carniolan bee, of Africa ; the superbly beautiful Dalmatian bee ; the Smyrnian bee, very popular in Austria ; and the stingless bees of South America.

In this country (i. e., Canada and the United States) we have principally the German and Italian bees ; but within the past five years the Syrian and Cyprian varieties have been extensively imported into this country by that distinguished and enterprising apiarist, D. A. Jones, of Beeton, Ontario. As the genus *Apis* is not indigenous to this continent, all now existing here have been introduced from the Eastern Hemisphere, — first, the black and Ligurian races, and latterly the Eastern varieties.

Each of the varieties now in this country (vying for “survival” as the “fittest”) has its distinguishing characteristics. So far, however, the Italians seem to possess more good points and desirable qualities than any of the other races, and hence are the most numerous and popular among advanced apiarists. Their chief distinguishing qualities are superior amiability, industry, and what may be called patriotism, or indomitable energy in defending their homes against invaders, such as robber bees and

the "bee-moth"—against both of which they are quite invincible. While different strains of this variety vary considerably in color, they are in general distinguished by three beautiful yellow bands across the abdomen. They also have longer tongues than the German bees, by which they are enabled to sip the nectar from places inaccessible to their less favored competitors. A. J. Cook, Entomological Professor in the Michigan Agricultural College, who has done very much to advance scientific bee-culture in the United States, says on this point: "The tongue of the black worker I have found, by repeated dissections and comparisons, made both by myself and by my pupils, is shorter than that of the Italian worker, and generally less hairy." In confirmation of this fact, established by Prof. Cook's dissections, I have frequently noticed my Italian bees, during a scarcity of honey from other sources, working upon the second bloom of the common red clover (not the *Trifolium pratense*, which the black bee can readily work upon), when the German bees were doing nothing on it, the flower tubes being too long for their tongues.

The black bees (or rather, German, for in point of fact they are not black in color, but a gray-black) have some desirable qualities, though they are now being rapidly superseded by the Italians. They produce nicer comb-honey than the Italians, or perhaps any other race. The proverbial whiteness and finish of their comb are due mostly to the extra *capping*.

For the Syrian races of bees Mr. Jones and some other leading apiarists claim some superior qualities. I am inclined to think the Syrian queens (Palestine strain), crossed with the Italian drones, will presently prove to be our very best bees—combining more good points than any other existing variety. Doubtless, however, the bee of the future will be greatly superior to anything we have at present. For purposes of experimentation in developing such, we have now in America several of the best varieties in existence under domestication. By judicious crossing, in accordance with the well-known laws of *variation* and *heredity*, such a result is quite certain. The vast improvement made in this way among our domestic animals within less than half a century fully warrants the conclusion that, in the evolution of things so palpable everywhere, we may in the case of our bees subsidize and utilize the same ever-acting law of progress.

Following the Syrians, and genealogically closely allied to them, we have the Cyprians, though not yet widely diffused. They resemble the Italians, of which they are supposed to be the progenitors. The Cyprian bees have some good points, and one very bad *point*. They are famous for their fecundity, but equally *infamous* for their ferocity, being maliciously expert in using very pointed stings. This variety (unless in this inspiring western atmosphere it acquires more amiability) is not likely to become popular, notwithstanding the marvelous fecundity of the queens. It may be possible, by crossing with some bee of good disposition, to mollify their bad tempers and retain their good qualities.

Of the remaining varieties of the honey-bee, and sub-varieties, including *hybrids*, little is practically known in this country, with the exception of one or two strains of the latter. The "hybrids," resulting from a cross between the Italian queen and the German drone, are well known in Canada and the United States, and, next to the pure Germans and Italians, are perhaps most numerous. These hybrids have excellent qualities: they make superb comb; are active and energetic; and, I have observed, stand the rigor of our Canadian winters much better than the pure Italians; but they are much less amiable.

A properly constituted colony of bees consists of three different kinds, viz.: an impregnated *queen* (the fully developed female); *drones* (the males); and *workers* (undeveloped females). The queen (absurdly called the "king-bee" from the time of Aristotle and even Virgil down to Huber) is the mother of the whole colony, and is capable of laying over three thousand eggs per day! During the height of the breeding-season in the honey-flow, she frequently lays from two to three thousand eggs per day for many consecutive days together. She remains prolific for from two to four years, and in some instances queens have been known to remain prolific upward of five years. Before the queen-bee of a colony becomes quite barren, and while she is still laying, if not removed by the apiarist, the workers themselves supersede her by killing her and rearing a young queen to take her place. Sometimes, however, the old, worn-out mother is permitted to remain in the hive while the young one is being reared, and ultimately dies of neglect and depression, or is assisted to "shuffle off" by her own unfilial

progeny. The queen is reared from the same egg as the worker, but in a much larger cell, nearly perpendicular, and on different food, called "royal jelly," which has the effect of fully developing the sexual apparatus. The time from the egg to the perfect queen emerged from the cell is about sixteen days. In a few days after hatching, the young queen leaves the hive for her "bridal flight," during which, and on the wing, she meets the male bee or drone in copulation and becomes impregnated, when she returns to the hive to remain there until she leads out the first swarm, which she does when she finds young queens being reared in the hive — one of them designed to take her place. A *single* fertile queen in a colony is the normal condition of the household, and hence the old queen departs to make room for her successor. Second and third swarms are of course led out by the young queens. With the exception of sometimes attacking and destroying inchoate queens, the sole function of the queen is to deposit eggs and lead out the first swarm. After her impregnation she deposits both drone and worker eggs — either kind at pleasure. She is capable, however, as a virgin queen, of laying fertile drone, but not worker, eggs. This apparently anomalous fact (*parthenogenesis*) is now well established, not only in the case of the virgin queen-bee, but in that of several other insects. Sometimes *worker*-bees in queenless colonies lay fertile drone-eggs; but the queen is the only fully developed female in the colony.

The worker-bees, though "the bone and sinew" of the hive, are not blest with the queen's longevity. In active work, on the wing and off, during the honey-season, they naturally live but a few weeks — from one to two months — while those hatched late in the fall will live until spring, sometimes reaching the age of nine months and upward, which is the maximum longevity of the worker-bee. In passing from the egg to the perfect bee, the worker occupies twenty-one days. The young worker spends several days (from ten to fifteen) at home building comb, attending to the young brood, receiving and depositing the loads of the outside workers, and sundry other little duties, before it ventures to the fields to work. The duties of the older workers of the colony are to gather honey, pollen, and propolis, destroy and

cast out the drones when necessary, and defend the colony from enemies without or within. They also, as already noticed, destroy old, unprolific queens and rear young ones to take their places, and sometimes lead out in swarming, as the queen does not always take the lead in swarming. And although very young bees are ordinarily very reluctant to leave the hive, I have seen such rush out under the swarming impulse so young that they couldn't fly more than a foot or two, if at all. They usually crawl back home again in apparent disgust with the outside world, and doubtless with more wisdom and less conceit.

The third and last rightful denizen of a perfect colony of bees is the unsophisticated, stingless, but much abused *drone* — the male bee. He is well named, however, being a very liberal feeder with excellent digestive organs for honey, and with no duties whatever within the hive further than the incidental one of contributing by the presence of his cumbrous corporation to the animal heat of the hive. As to his natural longevity, nobody from Virgil to Huber, Langstroth, Quinby, Newman, Cook, Jones, *et alii*, seems to know much about it. The matter not being invested with any importance, no investigator seems to have bothered his head much with it. So far as I could ever see, the drone seems to live and thrive admirably until he is either killed off by the workers, starved to death, or gallantly yields up his life in performing his sole function, which he invariably does in the performance of this function in the act of copulation. The drone, as Dr. Dzeirzon established, comes from an unimpregnated egg — the virgin queen, and sometimes even workers, being able to lay eggs which will produce drones. As a rule, drones are found in colonies whenever they are needed, or likely to be needed to impregnate the young queens, which is usually during the swarming season and honey-harvest. Though they are promptly ejected from strong colonies when not needed, and the honey-flow fails, they are tolerated in queenless colonies, and are sometimes wintered over. The drone is much larger than the worker, and his cell very protuberant, and in it he spends twenty-four days from the egg before he emerges.

As remarked at the outset, bee-culture made but little progress on scientific principles for thousands of years. It is only within

the last half-century or so that it has, under the magical talisman of science, fairly leaped forward like every other pursuit. The first great achievement was the application of the centrifugal force in the construction of the honey-extractor, thus enabling us to get the honey in its purity out of the comb without injuring the latter, when it can be returned to the bees to be refilled. A German (Herr von Aruschka) accomplished this, and thereby gave a great impetus to bee-culture. Indeed, the invention of the *movable frame* and *honey-extractor* completely revolutionized the *modus operandi* of bee-keeping. As to who is really entitled to the credit of inventing the movable frame, there is some uncertainty and a conflict of claims. The truth seems to be that some three or four different persons are fairly entitled to credit — each, it would appear, having conceived and developed the idea, more or less independently of the others. Huber and Schmidt in Germany, Munn in England, M. de Beauvoys in France, and Langstroth in the United States, are all fairly though not equally entitled to credit, and each has placed progressive bee-culture under tribute. Mr. Langstroth, however, seems entitled to much more credit than any of the others, for his hive had more practical value than the whole of the others together. In carrying out the common principle, Langstroth was undoubtedly far ahead.

The next stride in advance was the invention of the manufacture of “comb-foundation,” which was a great desideratum, as the honey-season in the temperate zone is comparatively short, and a new colony of bees supplied with the “comb-foundation” will do as much in two or three days as one alongside of it without the foundation will do in eight or ten days, as the writer has repeatedly proved. Foundation-comb is made by pressing sheets of pure beeswax between metal rollers or plates so constructed as to give to the wax the exact impressions of the cells in the basal wall of the natural comb. This saves the worker-bees just that much labor and time, and they proceed at once to rapidly draw out and develop the incipient cells. The merit of this invention is also somewhat in dispute. Upward of twenty years ago the late eminent apiarist, S. Wagner, patented comb-foundation in the United States; but it soon transpired that Herr Mehring, in Germany, had previously made foundation, and that the Germans

had been using it for three or four years. As it is the accumulated wit and experience of the age, rather than the man, that produces the invention, it is quite likely that Mr. Wagner arrived at the idea without the aid of the other German (for Mr. Wagner was himself a German). Montaigne said he "had as clear a right to think Plato's thoughts as Plato himself had"; and the American German had not only as good a right as the home Teuton to think out this invention, but he was just as likely to do so, and more likely, for the inspiriting and inventive Yankee atmosphere would quicken his blood and sharpen his wits.

Recent bee-culture has been also greatly promoted and extended by the specialty of queen-rearing, which has been brought to great perfection on scientific principles. D. A. Jones, in Canada, and Henry Alley, in the United States, have developed this department of apiculture to an extent leaving, one would think, little to be further achieved or desired. As, however, under the progressive laws of evolution, we have ceased to set bounds to improvement in anything not fixed mathematically, we will not say that any department of practical apiculture is yet fully wrought out to perfection.

In order to secure absolute purity of fertilization in the different varieties and sub-varieties in crossing, D. A. Jones, of Beeton, Ontario, has established queen-nurseries on different islands in Georgian Bay, so far from shore and from each other as to secure entire purity of blood in copulation. Queens and drones bred and mated under such circumstances, from pure imported stock, cannot be otherwise than pure.

Henry Alley also, of Wenham, Mass., has, through a long series of experiments during many years, successfully applied science to the *modus operandi* of queen-rearing, and has recently given the world the fruits of his labors and researches in a work entitled "The Bee-Keeper's Handy Book; or, Twenty-two Years' Experience in Queen-Rearing."

THE MICROBES OF ANIMAL DISEASES.

BY E. L. TROUESSART.

THE first of the virulent and contagious diseases in which the presence of a microbe was positively ascertained was anthrax, or splenic fever, which attacks most of our horned animals, and especially cattle and sheep.

As early as 1850, Davaine had observed the presence of minute rods in the blood of animals which died of *splenic fever*; but it was only in 1863, after Pasteur's first researches into the part played by microbes in fermentations, that Davaine suspected these rods of being the actual cause of the disease. He inoculated healthy animals with the tainted blood, and thus ascertained that even a very minute dose would produce a fatal attack of the disease, and the rods, to which he gave the name of *Bacteridia*, could always be discovered in enormous numbers in the blood.

The microbe so named by Davaine must from its characteristics be assigned to the genus *Bacillus*, and is now termed *Bacillus anthracis*. This disease, which affects men as well as animals, is characterized by general depression, by redness and congestion of the eyes, by short and irregular respiration, and by the formation of abscesses, which feature, in the case of the human subject, has procured for it the name of *malignant pustule*. The disease is quickly terminated by death, and an autopsy shows that the blood is black, that intestinal hemorrhage has occurred, and that the spleen is abnormally large, heavy, and gorged with blood; hence the name of *splenic fever*. The disease is generally inoculated by the bite of flies which have settled upon

carcasses and absorbed the bacteria, or by blood-poisoning through some accidental scratch, and this is especially the case with knackers and butchers who break and handle the bones of animals which have died of anthrax.

The period of incubation is very short. An ox which has been at work may return to the stall apparently healthy. He eats as usual; then lies down on his side and breathes heavily, while the eyes are still clear. Suddenly his head drops, his body grows cold; at the end of an hour the eye becomes glazed; the animal struggles to get up and falls dead. In this case, the illness has only lasted for an hour and a half.

In order to prove that the disease is really caused by *Bacillus anthracis*, Pasteur inserted a very small drop of blood, taken from an animal which had recently died of anthrax, in a glass flask which contained an infusion of yeast, neutralized by potassium and previously sterilized. In twenty-four hours the liquid, which had been clear, was seen to be full of very light flakes, produced by masses of bacilli, readily discernible under the microscope. A drop from the first flask produced the same effect in a second, and from that to a third, and so on. By this means the organism was completely freed from all which was foreign to it in the original blood, since it is calculated that, after from eight to ten of such processes, the drop of blood was diluted in a volume of liquid greater than the volume of the earth. Yet the tenth, twentieth, and even the fiftieth infusion would, when a drop was inserted under the skin of a sheep, procure its death by splenic fever, with the same symptoms as those produced by the original drop of blood. The bacillus is, therefore, the sole cause of the disease.

These cultures have often since been repeated by numerous observers, so that the microbe has been studied in all its forms, and the extent of its polymorphism has been ascertained. At the end of two days the bacterium, which, while still in the blood, is of a short abrupt form, displays excessively long filaments, which are sometimes rolled up like a coil of string. In about a week many of the filaments contain refracting, somewhat elongated nuclei. These nuclei presently form chaplets, in consequence of the rupture of the cell-wall of the rod which gave

birth to them ; others, again, float in the liquid in the form of isolated globules. These nuclei are the spores or germs of the microbes, which germinate when placed in the infusion, become elongated, and reproduce fresh bacilli.

These spores are much more tenacious of life than the microbes themselves. The latter perish in a temperature of 60° , by desiccation, in a vacuum, in carbonic acid, alcohol, and compressed oxygen. The spores, on the other hand, resist desiccation, so that they can float in the air in the form of dust. They also resist a temperature of from 90° to 95° , and the effects of a vacuum, of carbonic acid, of alcohol, and compressed oxygen.

In 1873 Pasteur, aided by Chamberland and Roux, carried on some experiments on a farm near Chartres, in order to discover why this disease is so common in some districts, in which its spread cannot be ascribed to the bite of flies. Grass, on which the germs of bacteridia had been placed, was given to the sheep. A certain number of them died of splenic fever. The glands and tissues of the back of the throat were very much swelled, as if the inoculation had occurred in the upper part of the alimentary canal, and by means of slight wounds on the surface of the mucous membrane of the mouth. In order to verify the fact, the grass given to the sheep was mixed with thistles and bearded ears of wheat and barley, or other prickly matter, and in consequence the mortality was sensibly increased.

In cases of spontaneous disease it was surmised that the germs which were artificially introduced into food in the course of these experiments are found upon the grass, especially in the neighborhood of places in which infected animals had been buried. It was, in fact, ascertained that these germs existed above and around the infected carcasses, and that they were absent at a certain distance from their burial-place. It is true that putrid fermentation destroys most of the bacteria, but before this occurs a certain number of microbes are dispersed by the gas disengaged from the carcass ; these dry up and produce germs which retain their vitality in the soil for a long while.

The mechanism by means of which these germs are brought to the surface of the soil and on to the grass on which the sheep feed is at once simple and remarkable. Earth-worms prefer soils

which are rich in humus or decomposing organic substance, and seek their food round the carcass. They swallow the earth containing the germs of which we have spoken, which they deposit on the surface of the soil, after it has traversed their intestinal canals, in the little heaps with which we are all acquainted. The germs do not lose their virulence in their passage through the worms' intestines, and, if the sheep swallow them together with the grass on which they browse, they may contract the disease. The turning-up of the soil by the spade or plow may produce the same effect.

A certain warmth is necessary for the formation of germs; none are produced when it falls below 12° , and the carcasses buried in winter are therefore less dangerous than those buried in the spring and summer. It is, in fact, in hot weather that the disease is most prevalent. Animals may, however, contract it even in their stalls from eating dry fodder on which germs of these bacteria remain.

Pasteur and his pupils performed an experiment in the Jura in 1879, which clearly shows that the presence of germs above the trenches in which carcasses have been buried is the principal cause of inoculation. Twenty oxen or cows had perished, and several of them were buried in trenches in a meadow where the presence of these germs was ascertained. Three of the graves were surrounded by a fence, within which four sheep were placed. Other sheep were folded within a few yards of the former, but in places where no infected animals had been buried. At the end of three days three of the sheep folded above the graves had died of splenic fever, while those excluded from them continued to be healthy. This result speaks for itself.

Malignant pustule, which is simply splenic fever, affects shepherds, butchers, and tanners, who handle the flesh and hide of tainted animals. Inoculation with the bacillus almost always occurs in consequence of a wound or scratch on the hands or face. In Germany, fatal cases of anthrax have been observed, in which the disease has been introduced through the mouth or lungs, as in the case of the sheep observed by Pasteur. The human subject appears, however, to be less apt to contract the disease than herbivora, since the flesh of animals affected by

splenic fever, and only killed when the microbe is fully developed in the blood, is often eaten in farm-houses. In this case the custom prevalent among French peasants of eating overcooked meat constitutes the chief safeguard, since the bacteria and their germs are thus destroyed.

The rapidity with which anthrax is propagated by inoculation generally renders all kinds of treatment useless ; if, however, the wound through which the microbe is introduced can be discovered, it should be cauterized at once. This method is often successful in man. The pustule is cauterized with red-hot iron, or with bichloride of mercury and thymic acid, two powerful antiseptics, certain to destroy the bacteridium. It is expedient, as a hygienic measure, to burn the tainted carcasses, and, if this is not done, they should be buried at a much greater depth than is usually the case.

But the preservative means on which chief reliance is now placed is vaccination with the virus of anthrax. Pasteur has ascertained that when animals are inoculated with a liquid containing bacteridia of which the virulence has been attenuated by culture carried as far as the tenth generation, or even further, their lives are preserved. They take the disease, but generally in a very mild form, and it is an important result of this treatment that they are henceforward safe from a fresh attack of the disease ; in a word, they are *vaccinated* against anthrax.

In the cultures prepared with the view of attenuating the microbe, it is the action of the oxygen of the air which renders the bacteridium less virulent. It should be subjected to a temperature of from 42° to 43° in the case of *Bacillus anthracis*, to enable it to multiply, and at the same time to check the production of spores which might make the liquid too powerful. At the end of the week, the culture, which at first killed the whole of ten sheep, killed only four or five out of ten. In ten or twelve days it ceased to kill any ; the disease was perfectly mild, as in the case of the human vaccinia. After the bacteridia have been attenuated they can be cultivated in the lower temperature of from 30° to 35° , and only produce spores of the same attenuated strength as the filaments which form them.

The vaccine thus obtained in Pasteur's laboratory is now dis-

tributed throughout the world, and has already saved numerous flocks from almost certain destruction. Although this process has only been known for a few years, its results are such that the gain to agriculture already amounts to many thousands of pounds.

Toussaint makes use of a slightly different mode of preparing a vaccine virus, which is, however, analagous to that of Pasteur. He subjects the lymph of the blood of a diseased animal to a temperature of 50° , and thus transforms it into vaccine. Toussaint considers the high temperature to be the principal agent of attenuation, and ascribes little or no importance to the action of the oxygen in the air.

Chamberland and Roux have recently made researches with the object of obtaining a similar vaccine by attenuating the primitive virus by means of antiseptic substances. They have ascertained that a solution of carbolic acid of one part in six hundred destroys the microbes of anthrax, while they can live and flourish in a solution of one part in nine hundred, but without producing spores, and their virulence is attenuated. When a nourishing broth is added to a solution of one in six hundred, the microbe can live and grow in it for months. Since the chief condition of attenuation consists in the absence of spores, this condition seems to be realized by the culture in a solution of carbolic acid, one in nine hundred, and it is probable that a fresh form of attenuated virus may thus be obtained. Diluted sulphuric acid gives analogous results. However this may be, the vaccine prepared by Pasteur's process is the only one which has been largely used, and which has afforded certain results to cattle-breeders.

Public experiments, performed before commissions composed of most competent men, have clearly shown the virtue of the protective action. In the summer of 1881 the initiation was taken by the Melun Society of Agriculture. Twenty-five sheep and eight cows or oxen were vaccinated at Pouilly-le-Fort, and then re-inoculated with blood from animals which had recently died of anthrax, together with twenty-five sheep and five cows which had not been previously vaccinated. None of the vaccinated animals suffered, while the twenty-five test-sheep died within forty-eight hours, and the five cows were so ill that the veterinary surgeons despaired of them for several days.

This experiment was publicly repeated in September, 1881, by Thuillier, Pasteur's fellow-worker, whose death we have recently had to deplore, before the representatives of the Austro-Hungarian government; and again near Berlin, in 1882, before the representatives of the German government, and always with the same success. Up to April, 1882, more than one hundred and thirty thousand sheep and two thousand oxen or cows had been vaccinated; and since that time the demand for vaccine from Pasteur's laboratory has reached him from every quarter.

The sickness of barn-door poultry, which is commonly called cholera, is caused by the presence in the blood of a small micrococcus or bacterium in the form of the figure 8, differing, therefore, in form from *Bacillus anthracis*, but also an aërobie. It may be cultivated in chicken-broth, neutralized by potash, while it soon dies in the extract of yeast, which is so well adapted to *Bacillus anthracis*. The microbe of this disease may also be attenuated by culture, and it may be done more easily than in the case of anthrax, since it is not necessary to raise the temperature, as the bacterium of fowl-cholera does not produce spores under culture. Pasteur has therefore been able to prepare an attenuated virus well adapted to protect fowls from further attacks of this disease.

The disease affecting swine, which is called *rouget*, or swine-fever, in the south of France, has been recently studied by Detmers in the United States, where it is also very prevalent, and by Pasteur in the department of Vaucluse. It is a kind of *pneumo-enteritis*. These observers consider that the disease is caused by a very slender microbe, formed, like that of fowl-cholera, in the shape of the figure 8, but more minute. Others say that there is a bacillus which was observed by Klein as early as 1878 in swine attacked by this disease. In spite of the apparent contradiction, it is probable that we have only two forms of the same microbe, for the bacillus in Klein's culture at first resembles *Bacterium termo*, in the form of an 8, before it is elongated into rods. Pasteur has succeeded in making cultures of microbes in the figure 8. He has inoculated swine with the attenuated form, after which they have been able to resist the disease, so there is reason to hope that in the near future this

new vaccine, containing the attenuated microbe, may become the safeguard of our pig-sties.

An epidemic which raged in Paris in 1881 was called the typhoid fever of horses, and was fatal to more than fifteen hundred animals belonging to the General Omnibus Company in that city. This disease is also produced by a microbe, with which Pasteur was able to inoculate other animals (rabbits); for this purpose he made use of the serous discharge from the horses' nostrils. The inoculated rabbits died with all the symptoms and lesions characteristic of the disease. The attenuation of this microbe by culture is difficult, since at the end of a certain time the action of the air kills it. Pasteur has, however, found an expedient by which to accomplish his purpose. When the culture is shown to be sterile in consequence of the death of the microbe, he takes as the mother-culture of a fresh series of daily cultures the one which was made on the day preceding the death of the first mother-culture. In this way he has obtained an attenuated virus with which to inoculate rabbits, and the same result might undoubtedly be obtained in the case of horses.

There are many other contagious diseases which affect domestic animals, and which are probably due to microbes, such as, for instance, the infectious pneumonia of horned cattle. This was probably the first disease in which the protective effects of inoculation were tried, according to Wilhelm's method. This method consisted in making an incision under the animal's tail with a scalpel dipped in the purulent mucus or blood taken from the lung of a beast which had died of pneumonia; sometimes the serous discharge from the swelling under the tail of an inoculated animal was used for others. Fever and loss of appetite ensued, lasting from eight to twenty-five days, but the animal was afterward safe from further attacks of the disease. Cattle-plague, or contagious typhus, is likewise ascribed to the presence of a microbe with which we are as yet imperfectly acquainted.

Experimental septicæmia is entitled to special mention, since it has too often been confounded with anthrax, and has been unskillfully produced with the intention of vaccinating animals in accordance with Pasteur's process. This occurs when too long an interval (twenty-four hours) elapses after the death of an

animal, before taking from it the blood intended for vaccine cultures. After this date the blood no longer contains *Bacillus anthracis*, which is succeeded by another microbe termed *vibrio septicus*, differing widely from the anthrax microbe in form, habit, and character. *Bacillus anthracis* is straight and immobile, while the septic vibrio is sinuous, curled, and mobile. Moreover, it is anaërobic, and does not survive contact with the air, but it thrives in a vacuum or in carbonic acid. Since *Bacillus anthracis* is, on the other hand, an aërobic, it is clear that the two microbes cannot exist simultaneously in the blood or in the same culture-liquid. The inoculation with this fresh microbe is no less fatal; its action is even more rapid than that of *Bacillus anthracis*, but the lesions are not the same; the spleen remains normal, while the liver is discolored. The septic vibrio is only found in minute quantities in the blood, so that it has escaped the notice of many observers. It is, however, found in immense numbers in the muscles, in the serous fluid of the intestines, and of other organs. It is very common in the intestines, and is probably the beginning of putrefaction.

Rabies is a canine disease which is communicated by a bite, and the inoculation of man and other animals by the saliva. We are not yet precisely acquainted with the microbe which causes the disease, but Pasteur's recent researches have thrown considerable light on its life-history, which is still, however, too much involved in obscurity. It must first be observed that the hypothetical microbe of rabies, which no one has yet discovered, should not be confounded with the microbe of human saliva; this is found in the mouths of healthy persons.

The following conclusions are the result of Pasteur's researches into the virus of rabies.

This virus is found in the saliva of animals and men affected by rabies, associated with various microbes. Inoculation with the saliva may produce death in three forms: by the salivary microbe, by the excessive development of pus, and finally by rabies. The brain, and especially the medulla oblongata, of men and animals which have died of rabies, is always virulent until putrefaction has set in. So also is the spinal cord. The virus is, therefore, essentially localized in the nervous system.

Rabies is rapidly and certainly developed by trephining the bones of the cranium, and then inoculating the surface of the brain with the blood or saliva of a rabid animal. In this way there is a suppression of the long incubation which ensues from simple inoculation of the blood by a bite or intravenous injection on any part of the body. It is probable that in this case the spinal cord is the first to be affected by the virus introduced into the blood ; it then fastens on its tissues and multiplies in them.

As a general rule, a first attack which has not proved fatal is no protection against a fresh attack. In 1881, however, a dog, which had displayed the first symptoms of the disease of which the other animals associated with him had died, not only recovered, but failed to take rabies by trephining, when re-inoculated in 1882. Pasteur is now in possession of four dogs which are absolutely secured from infection, whatever be the mode of inoculation and the intensity of the virus. All the other test-dogs which were inoculated at the same time died of rabies. In 1884 Pasteur found the means of attenuating the virus. For this purpose he has inoculated a morsel of the brain of a mad dog into a rabbit's brain, and has passed the virus proceeding from the rabbit through the organism of a monkey, whence it becomes attenuated and a protective vaccine for dogs. This is the first step toward the extinction of this terrible disease.

Glanders, again, is a disease easily transmitted from horses to man. Glanders, or farcy, is caused by the presence of a bacterium, observed as early as 1868 by Christot and Kiener, and more recently studied at Berlin by Schütz and Löfler. This microbe appears in the form of very fine rods (*bacillus*) in the lungs, liver, spleen, and nasal cavity. Babès and Havas found this bacillus in the human subject in 1881. Experimental cultures have been made simultaneously in France and Germany, and have given identical results.

Bouchard, Capitan, and Charrin made their cultures in neutralized solutions of extract of meat, maintained at a temperature of 37°. By means of successive sowings, they have obtained the production of unmixed microbes, presenting no trace of the original liquid, and this was done in vessels protected from air-germs. These cultures may be carried to the eighth generation.

Asses and horses inoculated with liquid containing the microbes produced by this culture have died with the lesions characteristic of glanders (glanderous tubercles in the spleen, lungs, etc). Cats and other animals which have been inoculated in the same way died with glanderous tubercles in the lymphatic glands and other organs.

It follows from these experiments that the microbe which causes this disease is always reproduced in the different culture-liquids with its characteristic form and dimensions; that uningulates can be inoculated with it, as well as man and other animals. In fact, this microbe is the essential cause of the disease.

We have already spoken of muscardine, a silk-worm's disease produced by a microscopic fungus; two other diseases are caused by distinct microbes, of which we must shortly speak. In the silk-worm nurseries, in which this disease prevails, the silk-worms which issue from the eggs, technically called seed, are slowly and irregularly developed, so as to vary greatly in size. Many die young, and those which survive the fourth molt shrink and shrivel away; they can hardly creep on to the heather to spin their cocoon, and produce scarcely any silk.

On an examination of the worms which have died of this disease, De Quatrefages ascertained the presence of minute stains on the skin and in the interior of the body, which he compared to a sprinkling of black pepper; hence the name *pebrine*. Under the microscope these stains assume the form of small mobile granules like bacteria, which Cornalia termed vibratile corpuscles, on account of their movements. Finally, Osimo and Vittadini ascertained the existence of these corpuscles in the eggs, and consequently showed that the epidemic might be averted by the sole use of healthy eggs, of which the soundness should be established by microscopic examination.

It was at about this date (1865) that Pasteur undertook the exhaustive study of pebrine; but Béchamp was the first to pronounce the disease parasitic, resembling muscardine in this respect, and caused by the attacks of a microbe—or microzyma, to adopt Béchamp's name—of which the germ or spore is derived from the air, at first attacking the silk-worm from with-

out, but multiplying in its interior, and developing with its growth, so that the infected moth is unable to lay its eggs without depositing the spores of the microbe at the same time, and thus exposing the young grub to attack as soon as it is born. Pasteur's own researches soon induced him to adopt the same view. The pebrine microbe was long regarded as a true bacterium, successively described as *Bacterium bombycis*, *Nosema bombycis*, and *Panistophyton ovale*. Balbiani's recent researches tend to show that it should be assigned to another group, much nearer to animals, and designated *Sporozoaria*. These protista, still regarded as plants by many naturalists, chiefly differ from bacteria by their mode of growth and reproduction, in which they resemble the parasitic protozoaria, termed *Psorospermia*, *Coccidies*, and *Gregarinidæ*.

In *Sporozoaria*, growth by fission, the rule in all bacteria, has not been observed; this distinction is fundamental. Sporozoaria multiply by free spore-formation in a mass of sarcode substance (protoplasm), resulting from the encysting of the primitive corpuscles (mother-cells). The formation of numerous spores may be observed within the mother-cells, having the appearance of *pseudonavicellæ* or spores of gregarinidæ and psorospermia (parasites of vertebrate animals). Balbiani forms these organisms, which are found in many insects, into a small group, which he terms *Microsporidia*.

The ripe spores are the vibratile corpuscles of Cornalia. They closely resemble the spores of some bacilli (*B. amylobacter*, for instance), and their germination is likewise effected by perforation of the spore at one end, and issue of the protoplasm from the interior. This, however, does not issue in a rod-like form (*Bacillus*), but in that of a small protoplasmic mass, with amœboid movements, a characteristic not observed in any bacterium. The other species of silk-worms which have been recently introduced, notably the oak silk-worm from China (*Attacus Pernyi*), are attacked by microsporidia analogous to those of pebrine.

Pasteur has indicated the mode of averting the ravages of this disease. He has thus addressed the breeders: "If you wish to know whether a lot of cocoons will yield good seed, separate

a portion of them and subject them to heat, which will accelerate the escape of the moth by four or five days, and examine them under the microscope to ascertain whether corpuscles of pebrine are present. If they are, send all the cocoons to the silk factory. If they are not diseased, allow them to breed, and the seed will be good and will hatch out successfully. In a word, start with absolutely healthy seed, produced by absolutely pure parents, and rear them under such conditions of cleanliness and isolation as may insure immunity from infection." When the disease is developed, fumigation with sulphurous acid is recommended, or preferably with creosote or carbolic acid, which do not affect the silk-worms and which hinder the development of microsporidia. These fumigations likewise keep the litter from becoming corrupt, and in a properly conducted nursery the litter is kept dry.

Wrongly confounded with pebrine, the disease *flacherie* is still more destructive to silk-worms. The symptoms are remarkable. The rearing of silk-worms often goes on regularly up to the fourth molt, and success seems assured, when the silk-worms suddenly cease to feed, avoid the leaves, become torpid, and perish, while still retaining an appearance of vitality, so that it is necessary to touch them in order to ascertain that they are dead. In this state they are termed *morts-flats*. A few days, sometimes even a few hours, suffice to transform the most flourishing nursery into a charnel-house. Pasteur examined these *morts-flats* and found that the leaves contained in the stomach and intestine were full of bacteria, resembling those which are developed when the leaves are bruised in a glass of water and left to putrefy. In a healthy specimen, of good digestion, these bacteria are never found. It is therefore evident that the disease is owing to bad digestion, and becomes rapidly fatal in animals which consume an enormous amount of food, and do nothing but eat from morning to night. The digestive ferments of unhealthy silk-worms do not suffice to destroy the bacteria of the leaves, nor to neutralize their injurious effects. These bacteria are really the cause of the disease, for if even a minute quantity of the leaves taken from the intestine of diseased silk-worms be given to healthy specimens they soon die of the same disease. It is, therefore, essentially contagious, and, in order to prevent

the diseased silk-worms from contaminating the healthy by soiling the leaves on which the latter are about to feed, as much space should be assigned to them as possible.

Good seed should also be selected, since it has been ascertained that some lots of seed are more liable to the disease than others. The affection does not indeed begin in the egg, as in pebrine, but the question of heredity comes in. It is clear that, when a silk-worm has been affected by *flacherie* without dying of it, its eggs will have little vitality, and the grubs which issue from them will be predisposed by their feeble constitution to contract the disease.

NITRIFICATION.

BY PROFESSOR H. P. ARMSBY, IN SCIENCE MONTHLY.

THE production of nitrates during the decay of nitrogenous organic matter under suitable conditions of moisture, aëration, and temperature, is a reaction of no little importance both technically and agriculturally: technically, as the sole natural source of saltpeter; agriculturally, on account of the fact that the nitrates formed in the soil constitute the chief if not the only supply of nitrogen to the plant. But, while the conditions of nitrification have long been well known, it is only within the past eight or nine years that its true cause has been recognized. Pasteur, in 1862, appears to have first pointed out the similarity of nitrification to the various oxidations of organic matter known to be effected by the agency of mycoderms, and of which the acetic fermentation is the typical example.

In 1873 A. Müller advanced the opinion that nitrification was due to the action of a ferment. He based his opinion upon the fact that solutions of pure ammonium salts and of urea are very stable, while the same bodies in sewage are rapidly nitrified, holding that the difference was due to the presence of a ferment in the latter case. In 1877 Schloesing and Müntz published the results of experiments which indicated that Pasteur's suggestion and Müller's opinion were correct, and that nitrification might really be classed as a fermentation. These experimenters were engaged in investigating the oxidizing effect of the soil upon sewage. They filled a glass tube one meter long with a mixture of quartz, sand, and a small quantity of powdered limestone,

and caused sewage to filter slowly through this artificial soil, so that it occupied eight days in passing through the tube. For twenty days the sewage passed through unaltered. Then nitrates began to appear in it, and rapidly increased in amount until all the nitrogen of the filtrate was in this combination. If nitrification is due to simple oxidation, it is difficult to see why it was so slow in commencing; but, if it is due to an organism which required time to develop in the artificial soil, the delay is at once explained.

Sewage was passed through the soil in this way for four months, with complete oxidation of its nitrogen. As soon, however, as vapor of chloroform, which is known to be inimical to the action of organized ferments, was caused to penetrate the soil, nitrification ceased, and did not recommence after the chloroform was withdrawn. After the sewage had passed unchanged for seven weeks, a small amount of turbid washings of a soil known to nitrify with ease was poured upon the top of the soil. After eight days (*i. e.*, exactly the time required for the liquid to traverse the column of soil), nitrates re-appeared in the strata, and continued to be formed as long as the experiment was continued. All these facts point plainly to an organism as the cause of nitrification. It developed in the soil during the first twenty days of the experiment from germs introduced by air or sewage; it was killed by the chloroform-vapor and re-introduced in the soil-washing.

In 1878 appeared the results of experiments made by Warrington in the Rothamsted Laboratory, which fully confirmed those of Schloesing and Müntz. He first showed that a very considerable nitrification took place in a good garden-soil when a current of air was aspirated through the moist soil, but that hardly any formation of nitrates took place when this air contained vapors of chloroform or carbon disulphide, while vapor of carbolic acid seemed to produce the same effect so far as it was brought in contact with the soil. Thus far the results were simply confirmatory of those of Schloesing and Müntz. Further experiments, however, developed the important fact that nitrification could be brought about in dilute solutions of ammonium salts, by seeding them with a small amount either of a nitrifying

soil or of a similar solution which had undergone nitrification. The first experiments were made with the dilute solutions employed in the determination of ammonia by Messler's method, with the addition of small quantities of tartrate and phosphate of potassium, and precipitated carbonate of calcium. The solutions used in later experiments had the following composition per liter : —

Ammonium chloride	80 milligrammes.
Sodium potassium tartrate	80 “
Potassium phosphate	40 “
Magnesium sulphate	20 “

Precipitated calcium carbonate was added to supply the necessary base. By this discovery the way was opened for the easy and fruitful study of the process and of the conditions affecting it.

Since the publication of Warrington's paper, a large amount of work has been done in this direction both by this investigator and by others. As a result, the ferment theory of nitrification has been very thoroughly established, the organism producing it has been isolated, and considerable progress made in the study of the conditions affecting nitrification, particularly in fluid media.

That nitrification is due to the action of a living organism is shown in various ways. Sterilized solutions, otherwise suitable for nitrification, have been preserved for as long as three years unchanged. But, if to such a solution a small amount of a solution or a soil in which nitrification has recently taken place be added, the solution nitrifies within a short time.

Nitrification is strictly confined to the range of temperature within which the action of low organisms is possible. It does not take place unless all the nutritive materials necessary for such organisms are present, absence of phosphoric acid, for example, completely preventing it. Antiseptics, as already illustrated, inhibit nitrification. The action of heat likewise confirms the ferment theory. The temperature of boiling water at once stops nitrification, and it is not resumed until the medium is seeded again from some external source.

Some of the more important conditions affecting nitrification

in liquids (and presumably also in porous solids, such as soil) are :

1. Alkalinity of the solution ; 2. Concentration of the solution ;
3. Character and amount of the ferment ; 4. Temperature.

1. While nitrification does not take place in the absence of a salifiable base, any considerable degree of alkalinity greatly retards it, and, if it exceeds the equivalent of about three hundred and fifty parts of nitrogen per million, stops it.

2. Under like circumstances, nitrification begins more promptly the more dilute the solution. No definite limit of concentration can be stated, beyond which nitrification cannot take place on account of the great differences caused by differences in the —

3. Character and amount of the ferment. The character of the ferment is determined by its previous history. A strong ferment, producing prompt and rapid nitrification, is obtained by repeated cultivations in moderately strong solutions well supplied with nutritive matter, while the opposite course produces a weak ferment. The stronger the ferment, and the greater the amount of it used for seeding, the sooner the nitrification begins, and the greater is the admissible concentration of the solution.

4. Nitrification has been observed to take place at a mean temperature of 3.2° C. The superior limit seems to be 40° to 50° C., the optimum 35° to 37° C.

A variety of nitrogenous substances have proved susceptible to nitrification in solution. The weight of evidence, however, appears to show that in all cases the nitrogen first assumes the form of ammonia, and that the latter is, strictly speaking, the only substance capable of being nitrified. In the case of urea this has been observed to lead to some interesting results. Thus, if nitrification is induced in a solution of urea containing no salifiable base, the process stops when one half the nitrogen has been oxidized, ammonium nitrate being produced. If the concentration exceeds a certain limit no nitrification occurs, the alkalinity produced when the urea is converted into ammonium carbonate being sufficient to prevent the action of the ferment. If, however, gypsum be present, the well-known double decomposition into calcium carbonate and ammonium sulphate takes place, and, the latter having a neutral reaction, nitrification proceeds unhindered.

An interesting and hitherto unexplained fact which was noticed in Warrington's experiments is, that sometimes nitrous and sometimes nitric acid was produced, and at times both in the same solution. The experiments thus far published suggest the possibility of the existence of two ferments, a nitric and a nitrous, but on this branch of the subject we may expect more light when investigations now in progress at Rothamsted are made public.

Some investigations into the distribution of the nitric ferment in natural soil are summarized by Warrington as follows: "I am disposed to conclude that in our clay soils the nitrifying organism is not uniformly distributed much below nine inches from the surface. On much lighter grounds it may perhaps be assumed that the organism is sparsely distributed down to eighteen inches, or, possibly, somewhat farther. At depths of from two feet to eight feet there is no trustworthy evidence to show that the clay contains the nitrifying organism. It is, however, probable that the organism may occur in the natural channels which penetrate the subsoil at a greater depth than in the solid clay. In the case of sandy soils we may probably assume that the organism will be found at a lower depth than in clays."

NEW HAMPSHIRE AGRICULTURE.

SIXTEENTH ANNUAL REPORT

OF THE

BOARD OF AGRICULTURE

FROM

JUNE 1, 1886, TO MAY 1, 1887.

By JAMES O. ADAMS, SECRETARY.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1887.

BOARD OF AGRICULTURE.

ORGANIZED AUGUST 23, 1870.

MEMBERS.

MOSES HUMPHREY, <i>Chairman</i>	.	.	.	Concord.
JAMES O. ADAMS, <i>Secretary</i>	.	.	.	Boscawen.
W. H. H. MASON	.	.	.	Moultonborough.
HIRAM PARKER	.	.	.	Lempster.
JASON S. PERRY	.	.	.	Rindge.
ALBERT DEMERITT	.	.	.	Durham.
JOSEPH FARNUM	.	.	.	Peterborough.
SIDNEY B. WHITTEMORE	.	.	.	Colebrook.
JOHN E. CARR	.	.	.	North Haverhill.
JOHN D. LYMAN	.	.	.	Exeter.
GEORGE S. PHILBRICK	.	.	.	Tilton.

Nahum J. Bachelder of Andover was elected secretary, February 23, 1887, to fill the vacancy made by the death of Mr. Adams.

AGRICULTURAL ROOMS,
CONCORD, N. H., May 1, 1887.

To His Excellency the Governor:

The sixteenth annual report of the Board of Agriculture from June 1, 1886, to May 1, 1887, is herewith submitted.

N. J. BACHELDER, *Secretary.*

R E P O R T.

JAMES O. ADAMS, who held the office of secretary of the Board of Agriculture from its organization, August 23, 1870, to the time of his death, was born in East Concord, June 5, 1818.

He learned the trade of a printer at Concord, fitted for college at Lyndon, Vermont, and graduated from Dartmouth in 1843. He was principal of Lyndon Academy for awhile, afterwards located in Manchester, reading law while teaching also in the city of Manchester, where he resided for many years. Mr. Adams was nine years editor and publisher of the "American," during which time he established and for six years published the "Granite State Farmer." He also edited the "Mirror and American," for a time. He served as clerk of his ward for six years and moderator nine years; was a member of the common council in 1847 and 1848, and president in the latter year. He was a member of the school committee of Manchester four years, and superintendent of schools from 1855 to 1859 and from 1861 to 1867.

He was a member of the Legislature from Manchester in 1852 and afterwards elected nine times to that body. He was the Republican candidate for speaker in 1871, when the Legislature was carried by the Democrats; was five years secretary of the New Hampshire Agricultural Society and edited first five printed volumes of their report, and was a delegate from this society to the World's Fair in London in 1851. He died on his farm at Boscawen, after a brief illness, February 7, 1887. During his life he was interested in school affairs and was a member of the school board of Boscawen at the time of his death. His long connection with the Board of Agriculture gave him a wide

acquaintance throughout the State and his genial disposition won him many friends. The fifteen annual reports which he edited are a valuable contribution to the agricultural literature of the State and will remain a lasting testimonial to his interest in the development of agriculture in New Hampshire.

The duties of the office were assumed by the present secretary, March 1, 1887. The preceding report for the year ending June 1, 1886, had been prepared by Mr. Adams and was in the hands of the printer. Undoubtedly it was the intention of the previous secretary to extend the report but from what material we are unable to determine.

Believing it to be for the advantage of the farming interests that the Agricultural Report be issued to date, we have collected from such sources as are available and arranged the matter which follows, and present it as the report to May 1, 1887. It is not as complete as we would wish, but we express the hope that the reader will rightly consider the circumstances in which we are placed, and the difficulties in the way of a lengthy report. We are under obligation to various gentlemen for assistance in its preparation. We are specially indebted to Hon. Joseph B. Walker, of Concord, E. J. Burnham, of the "Manchester Union," James L. Gerrish, of Webster, James M. Connor, of Hopkinton, and the various newspapers which have been made available. The information solicited from the members of the Board has been given with uniform courtesy. The papers at the close of the report were, in part, arranged for by Mr. Adams, and in other instances furnished at our solicitation.

ANNUAL MEETING AT BOAR'S HEAD.

The first meeting, which was the annual meeting of the Board, was held at Boar's Head, August 18 and 19, 1886. The meeting on the first day was a business session and the second a field day. Many leading agriculturists of the State were present, and it was considered an eminent success. The following report of the meeting by E. J. Burnham appeared in the "Manchester Union":

"The idea of having a farmers' field day in connection with

the annual meeting of the State Board of Agriculture was happily carried out and proved a grand success. The day was fair and the view of the ocean exceptionally fine. The arrangements for the occasion, taken in hand by Mr. S. B. Dumas of the Boar's Head House, were elaborate and complete in every particular. A canvas pavilion was spread on the bold promontory at the rear of the hotel and abundantly supplied with seats, and the atmosphere was so mild that overcoats were unthought of, as the large company of visitors enjoyed themselves in the open air.

“The members of the Board met on the evening of the 18th for the purpose of laying out its work for the coming fall and winter, and in the absence of the chairman, Hon. Moses Humphrey, who was unavoidably detained, S. B. Whittemore, of Colebrook, was chosen chairman *pro tem*. Messrs. Joseph Farnum, of Peterborough, recently appointed the successor to Hon. D. H. Goodell, of Antrim, as member for Hillsborough county, and J. S. Perry, of Rindge, successor to Hon. G. K. Harvey, of Surry, for Cheshire county, were present at a meeting of the Board for the first time. In the discussion of plans for the future the secretary, Hon. James O. Adams, of Boscawen, suggested that a week each be given to canvassing the several counties of the State the coming season, and that meetings be held wherever there appeared to be the greatest demand. It was agreed by the Board that the suggestion should be adopted, and that the member for each county with the secretary and such co-operation as they could secure should do the work in that county. Mr. DeMeritte for Strafford county and Mr. Philbrick for Belknap were instructed to arrange for meetings to be held consecutively at central points in those counties at such time in October or November as seemed advisable. The second week in November was assigned to Coös, covering that section from Groveton via Berlin and Milan to Dummer, Errol, Colebrook, and Stratford Hollow. Arrangements for other counties were left with the local members and the secretary.

“At a comparatively early hour on the 19th the company began to gather in goodly numbers, and by two o'clock there were long lines of teams hitched at available points near the Boar's Head

House, the arrivals consisting of farmers and their families from the towns of Rockingham county, and an unexpected number of people from farther away. Among the more prominent agriculturists and others present were Hon. Moses Humphrey, of Concord, president of the Board, Hon. J. O. Adams, of Boscawen, secretary, Hon J. D. Lyman, of Exeter, S. B. Whittemore, of Colebrook, George S. Philbrick, of Tilton, Albert DeMeritte, of Durham, Joseph Farnum, of the 'Peterborough Transcript,' and J. S. Perry, of Rindge, all members of the Board; Col. Thomas Cogswell, of Gilmanton, Hon. D. H. Goodell, of Antrim, and Col. J. M. Weare, of Seabrook, ex-members; Col. W. H. Stinson, of Dunbarton, master of the State Grange; A. W. Cheever, of the 'New England Farmer,' President Bartlett, of Dartmouth College, Rev. Dr. Quint, of Dover, Hon. Warren Brown, of Hampton Falls, L. T. Hazen, of Whitefield, J. B. Walker, of Concord, J. L. Gerrish, of Webster, W. H. Hills, Moses Dow, and N. H. Clark, of Plaistow, Past Master William H. Hunnewell, J. W. Odlin, M. B. Morrill, and E. G. Eastman, Esq., of Exeter, A. G. Whittier, of Raymond, Harrison Rowe, of Kensington, and many others.

"The company assembled in the pavilion at about 11 o'clock, and the formal exercises were opened by Secretary Adams in a few spirited remarks. At his request, Hon. J. D. Lyman accepted the position of president of the day and entered upon the discharge of his duties with a bright speech full of humorous personal allusions, a tribute to the late Colonel Clough, of Canterbury, and the suggestion that L. T. Hazen, of Whitefield, was succeeding to the title of 'corn king.'

"The first speaker introduced was Col. Thomas Cogswell, of Gilmanton, who spoke freely without notes, and gave a good, sound farm talk. He said he came from a farmers' meeting at Dover the day before, where he promised Rev. Dr. Quint that he would not talk more politics than the latter talked religion, and he should keep his promise here. He came as an ex-member of the Board of Agriculture, and was proud of the fact that he resigned in favor of a better man, J. W. Sanborn, who filled the position with credit until called first to Hanover, and later to Missouri. He was proud, too, to come here from a farm in Gil-

manton that had been in the hands of an unbroken line of Thomas Cogswells for 102 years, and of a family which sent eight members to the Revolutionary War whose aggregate term of service was thirty years and whose total height was fifty feet. For himself, when he had looked about him and seen what his ancestors did,—how they had cleared the stony ground, and built stone walls, and labored early and late to make a farm,—he had felt it a shame not to be up and doing something in that line also, and as this was a farmers' meeting he would tell something of what he had done. Two years ago there were on his farm some seven or eight acres of neglected land, bearing only polypodes and willows. It needed draining, plowing, and fertilizing. With four oxen, two horses, and a gang of men, he sodded three acres, and was proud of the fact that in the first two years he had cut therefrom more than twelve tons of good English hay.

“Following Colonel Cogswell, Hon. Moses Humphrey, of Concord, chairman of the Board, hale and vigorous, although nearing his 80th year, spoke of the days when he was a fisherman off that coast a half century ago, and of his interest in agriculture for many years, and of the improvements which had been made in farming methods. Col. J. M. Weare, of Seabrook, indulged in discussion on forestry with Hon. J. D. Lyman, and W. H. Hills, of Plaistow, spoke at some length on his specialty of small fruits.

“After an hour spent in sauntering about the grounds, the company, as many as could, re-assembled in the good-sized pavilion, and S. B. Whittemore, of Colebrook, a member of the Board, and a trustee of the Agricultural College, was the first speaker called. He gave an interesting account of the rich farming section in which he lives, a section almost unknown to people in the southern section of the State, and was followed by G. S. Philbrick, of Tilton, another member of the Board, who spoke on the reduction of the cost of producing milk. At the close of his remarks, Hon. D. H. Goodell, of Antrim, retiring member of the Board, was called, and said he considered that anything that could be done to reduce the cost of farm products while retaining the quality was one of the most important considerations in agriculture. Prices have been falling on every

hand, and means must be devised to reduce the cost of production. In manufactures, he was glad to know that the price of goods in this country was almost as low as in the older countries, while still giving labor a fair remuneration. He was a farmer himself and was glad that he knew how to plant, mow, pitch, and hoe. He considered agriculture the most honorable business in which men are engaged, and as profitable when put on a business basis. He congratulated the farmers upon their success the present year, and was glad to be able to say that the farming population of New Hampshire is no longer decreasing, because people no longer regard it as a business to escape from.

“At this point Past Master William H. Hunnewell, of Exeter, submitted a proposition that a committee be appointed by the chair to arrange for the holding of a similar meeting here next year, which was unanimously adopted. Short addresses followed by President S. C. Bartlett, of Dartmouth College, A. W. Cheever, of the ‘New England Farmer,’ Albert DeMeritte, of Durham, Colonel W. H. Stinson, of Dunbarton, who spoke earnestly for the Grange in New Hampshire, A. G. Whittier, of Raymond, L. T. Hazen, of Whitefield, and others, and the formal exercises closed.”

COÖS COUNTY MEETINGS.

The series of meetings for Coös county were arranged to commence Monday, November 15, and continue through the week. Assistance in preparing the report of those meetings has been given by Hon. J. B. Walker, who accompanied the members of the Board on that occasion.

The meetings of the Board in Coös county were conducted by Mr. Whittemore, the member of the Board for that county, the secretary, and Mr. J. B. Walker, of Concord. The first was holden in the Methodist church, in Groveton, on the evening of Monday, November 15, and was fairly attended. Mr. Whittemore presided, as he also did at all the meetings held in his county. Having made introductory remarks appropriate to the occasion, he introduced the secretary who spoke upon the subject of the proper management of soils, and was followed by Mr.

Walker, upon that of the retrograde in most of our New Hampshire farming and the means to be used for its advancement.

The next morning, Tuesday, the representatives of the Board proceeded to Stark, where they dined with Mr. George M. Smith, a good farmer, who showed them a bin of oats, raised the previous season, which weighed fifty pounds to the bushel and yielded at the rate of one hundred bushels to the acre.

There was a good attendance at a meeting held at the town house in the afternoon. The subjects there discussed were, "How to Dress the Farm and Keep it," by the secretary, and "Grass," by Mr. Walker, introduced and followed by remarks by Mr. Whittemore.

The next meeting was held on the evening of the same day at West Milan, seven miles distant. This was in the schoolhouse, and the audience was composed in part of scholars. The selection of the subjects there discussed was governed in part by that fact. The interest of the meeting was enhanced by an exhibition of some of the products of his farm and garden, by Mr. A. A. Higgins, consisting of peas, oats, wheat, honey, and poultry. One of the speakers will ever feel grateful to the splendid Brahmas brought in on that occasion. To illustrate the subject of germination and subsequent plant growth, he had called attention to a kernel of corn which he had drawn in his best style upon the blackboard. "That looks more like a balloon than it does like a kernel of corn," said, in loud whisper, one boy of keen artistic perception to another sitting beside him. Just at this very moment, however, the chickens in the cage began to chirrup their recognition of the familiar grain, and the threatened discomforture of the blackboard artist was changed to a proud triumph.

The next morning, Wednesday, the Board's representatives went, by invitation, to visit Mr. Higgins at what he denominated his "lumberman's camp," some three miles distant from the village. Passing his saw mill and turning sharp to the left soon after, the sleigh was stopped in front of the "camp." This proved to be a one and a half story white house, of liberal proportions, which, but for the snow and the absence of the long veranda, might have been easily mistaken for the house of a well-to-do Southern planter of the olden time.

The pleasant anticipations awakened by its exterior were more than realized upon entering. Never were humble preachers of the gospel of agriculture on a wearisome circuit more kindly received or agreeably entertained. It was bleak enough without; the somber snow-fall then prevailing and the near presence of dark forests all around made a strongly contrasting background to the bright display of comfort within, presented in cheerful rooms, well-furnished and warmed, adorned on all sides with interesting pictures and blooming plants, as well as by numberless other things of beauty which ladies of good taste always contrive to collect and arrange in a home. A good library, of which was caught a glimpse, and a good piano-forte, expressively played, caused the wish that the subsequent work of the week might be executed on that spot.

But such a wish was vain. Fortified with a sumptuous dinner and cheered by the abounding kindness they had received, the agricultural pilgrims bade a reluctant adieu to Mr. and Mrs. Higgins and daughter and turned their faces towards Dummer. After striking the Androscoggin, they followed down its west bank, some three miles, to Milan Corner Bridge, where they crossed it, and retraced their way up the east bank, about as far, to the open doors of Mr. W. A. Willis, in the southeast part of Dummer, having proved to their entire satisfaction that, on a cold, stormy, and windy day, in Northern New Hampshire, "the longest way round" is not always "the nearest way home." But the travelers soon forgot the wearisome ride in the hearty welcome accorded them. The Dummer meeting was held in the schoolhouse near by, in the evening. Owing to the storm it was less numerous than had been anticipated. The discussions were upon farm machinery and horse power, feeding farm animals, and how to make the farm pay, to which the contributions of local aid added increased interest. At the close of the meeting the visiting band was divided for the night, a part returning to Mr. Willis, and a part spending the night at the house of Mr. I. C. Wight.

During the night the snow-storm changed to one of rain, which was falling abundantly the next morning, Thursday. The first meeting of that day was to be in the schoolhouse at Errol

Bridge, nearly twenty miles away, at two o'clock, and, storm or no storm, the appointment must be met. Soon after starting the sky lightened and fair weather appeared. Recrossing the Androscoggin in the northeast part of the town, by the ferry, the party followed up its west bank for some fourteen miles to Errol. Not a single house was passed this entire distance. The clear waters of the river were on the right hand side of the road, and the primeval forest was on the left. A jam of logs filled the channel for the last two miles, which the last spring's floods had not carried out. This drive was said to measure fourteen million feet. Used to large stories, our agriculturists expanded their throats to the utmost and swallowed as much of this one as they could without choking. The upper end of the jam marked the termination of the morning's ride. That the sturdy form and cheery face of Mr. Luman H. Grover, the landlord of the comfortable little inn, was a welcome sight, admits of no kind of doubt. But the power behind the throne, manifested a little later in the dining-room, gave ample proof that it takes two to run a good hotel, and that the veiled partner is fully as important to the hungry wayfarer as the visible one. Mrs. Grover fairly earned the unbounded gratitude of at least three hungry pilgrims that day.

The afternoon meeting was held at the appointed hour and place. It was the smallest of the series, for the rain had again set in, and it took the form of a familiar farmers' conference. Mr. Whittemore spoke first and was followed by the secretary, who detailed at some length the forms of English social life as contrasted with our own. Mr. Walker, who had choked a little in swallowing the story of the fourteen million drive of logs, finding himself in the heart of a lumber country, spoke, as he had time, upon the Southern pine (*Pinus Australis*), now brought in considerable quantities to New Hampshire, a tree as common on the great sand belt which skirts the Atlantic coast from Southern Virginia to Florida and that of the Gulf on to the Mississippi River, as is the spruce in Coös county.

The Board's representatives proceeded at the close of this meeting to the house of Mr. John Akers, in the northwest part of the town, where they were bountifully entertained. An

evening meeting, held in a schoolhouse about a mile distant, was well attended. After remarks by Mr. Whittemore, the secretary discussed the subject of animal foods, and Mr. Walker called attention to oats and oat culture.

The next morning, Friday, the party left the large establishment of Mr. Akers, satisfied that his heart was as big as his house. The only grudge borne him was by the writer of this report, to whom he had shown a pair of steers larger and finer than his own.

The next appointment was for the evening of this day, at Stratford Hollow, forty odd miles away. A snow-storm greeted the lecturers as they reached the summit in Dixville Notch, which continued through the day. The noonday meal was taken at the house of Messrs. Asa and Samuel T. Noyes, of Colebrook, two of the best farmers in New Hampshire. A brief call, subsequently, at the house of the Coös member, made a pleasant break in the long drive of the afternoon and early evening. It was evident, when at four o'clock the party reached Colebrook village, that the howling storm and fast accumulating snow made it impossible to reach Stratford Hollow in season for the meeting, and it was accordingly cancelled by telegraph. But it was the only one missed during a week when it snowed or rained three days out of five.

MEETING AT WEBSTER.

The next meeting under the auspices of the Board was held at Webster, November 23, which was a severely stormy day. James L. Gerrish, of Webster, reported this meeting for the "People and Patriot," and we publish his report in full.

Members of the Board, who had accepted an invitation from Daniel Webster Grange, made their appearance at Grange Hall promptly, in the persons of the chairman and secretary, supported by Joseph B. Walker, of Concord, who rendered them a good service in the meeting, although he claimed to be only a drafted man. A fair number of farmers with their wives and daughters were present, although the weather was severe. Chairman Humphrey opened the meeting with remarks covering con-

siderable ground, so that those following had liberty in choosing from the various propositions touched in his opening address.

CHAIRMAN HUMPHREY'S REMARKS.

He said there had been great changes in methods in agriculture in the last half century. There were great improvements both North and South, as a matter of necessity, as the country grew older and the original soils became exhausted from continuous cropping. Formerly attention was riveted on how to destroy the original forests and construct the necessary fences and farm buildings. To-day it is different ; now successful farming is the result of thought and study. Those are not blest the most who are born with abundant means, but rather necessity and the hard knocks incident to the pursuit of agriculture in New Hampshire have developed and brought out the sterling qualities of our men. The introduction of machinery has made necessary great improvement in our farms, otherwise machines could not be profitably used. He referred to the old Dutch plow, and the wooden mold boards, as compared with those used at the present time. Now the plow and harrow both may be ridden. He next spoke of the great improvement in cattle since the first fair which he attended in his younger days. The general adoption of improved machinery, stock, and methods, has been brought about by agitating and discussing these things. The same is true in the profitable use of fertilizers. Every farmer should be able to judge of their value, as it is not equal on all farms. Ashes were not worth using on his land, he said, while they would send to Concord for ashes to use in Rockingham county, and pay the freight above the cost. He had used coal ashes profitably on potatoes, using one half a shovelful to the hill. He touched upon the improvements in haying implements, and the time and expense saved by handling less than formerly, when two or three days were required for drying it. He advocated raising corn on all lands not adapted to grass. He had advocated corn raising for New Hampshire more than any other member of the Board, and was glad to see that many farmers now planted large areas. He estimated the fodder to be worth more than the hay crop,

on bound-out fields, and advised to turn them over and plant to corn whenever the grass commenced to fail. Great improvement had also been made in milk production by the introduction of new methods of curing corn fodder. He had made the feeding of it profitable before the silo was introduced, having learned from Prof. Sanborn how to use cotton-seed meal and other concentrated food with it. But now the light soils on all farms might be used for raising ensilage, as he had no doubt of its value. Large quantities of fodder could thus be raised, which would in turn increase the amount of dressing with which to bring up the grass product in the quickest and easiest manner. All who try ensilage tell the same story, and he had no doubt of its value.

After the above remarks, the chairman introduced Mr. Walker.

REMARKS BY MR. WALKER.

He commenced by saying that he was a farmer. His ancestors for seven or eight generations were farmers. Some would say that farming was at present at a low ebb. He did not hold that view, for ebb tide was when the sea was at its lowest. He thought the tide was rising a little compared with our past experience. Notwithstanding there were some discouragements, he thought it might improve still more. He acknowledged that there were farms abandoned, and possibly some growing up to bushes, but there could be found reasons for this state of things. It was acknowledged that there was a penalty attached to moral law breaking, and he believed that agricultural sins had a penalty as well.

If the farmer carries off and sells his crops year by year, returning nothing, it is an agricultural sin and the farm would certainly run down in consequence. If Mr. Burbank, who manufactures lumber, should say that lumber was selling low and he thought he would not do much, we should say he showed a lack of enterprise. That very thing, the lack of enterprise, is another agricultural sin and the penalty must follow. Here Mr. Walker gave a description of one of these enterprise-lacking farmers, and his surroundings, which he saw not long since in passing through

one of the towns in Merrimack county, saying at the close of his description that there was an advertisement stating that that farm was for sale. He thought that the farm ought to be sold and pass from the one who occupied it into thriftier hands. He said that he was farming better than formerly; he plowed his land oftener. The ground should be turned over and pulverized. He believed that another sin was in not half taking care of our farms. He related an anecdote showing how he had once been reproved for insufficient cultivation by the late John Moore, an agricultural writer of some note.

Still another sin which we are guilty of is too light manuring. In 1870 there was, according to the census, only one animal kept to each four acres of land in New Hampshire. What kind of a crop could a man expect from a 40 or 100 acre farm at this rate? There was still another thing which he would mention, although he would hardly call it a sin, it was rather a bugbear; that was the failure to employ sufficient help.

The farmer will say, because wages are high, "I cannot hire, no, no, I cannot afford it! This has been growing worse and worse from year to year and I guess I will cut the grass and get along as well as I can." And so the farm grows up to bushes. Now, as farmers, are we willing to be convinced of our sins? If not, we are agriculturally lost. This is what we must come to as tillers of the soil unless we "repent, and bring forth fruits meet for repentance." We must not only "right about" but right about and then go ahead. Poor culture will not do. We must run the plow four times as much and then pulverize the soil, thus developing plant food which is locked up in the earth waiting to be liberated.

If man is willing to work in conjunction with the Almighty, He will reward his labors, but we are required to do our part by thorough culture, and by returning something to the soil. When man was doomed to labor and sweat, it was called a curse, but after all it was indeed a blessing entailed.

Old Jethro Tull, in England, was at least half right, if not more, when he thought he had discovered the key to success in thoroughly pulverizing the soil, which he claimed was all that was necessary. Suitable implements were now made for a

thorough pulverization of the soil, and he could get as much for a day's work as formerly, on this account, although wages were higher. He believed in buying superphosphates and special manures in order to get on a good footing, agriculturally; but not afterwards as a main reliance. Meat and other substantial are required for making muscle. Superphosphates may be compared to sweet cake in our diet. They should not be the regular thing in our farming. Bring back the stocks of cattle kept on our farms in former years and use their manure for enriching them.

Farmers in some instances could exchange the raw products for manure; this was not the rule, but the exception. Those remote from market could not haul stable manure to their farms, but must feed the hay to stock and thus make the dressing for their land. He related conversation had with an English farmer who said he never did work with a man that a horse could do just as well. By observing this maxim he could get as much done for a dollar by the increased use of machinery, although the price of labor was about a third higher.

While much disappointment results from employing irresponsible laborers, horses and machinery can be depended on. Improved machinery made it even possible to dispense with a large amount of brute force. Where it formerly required eight oxen to break up the witch grass lands on his farm it could be done now with the sulky and three horses, requiring only one man instead of three or four. He mentioned a list of plows which had been in use on his farm, but said they had all been superseded by better implements with great saving of labor per acre in working the soil. What we needed was more knowledge and faith in our calling. More knowledge resulted from increased thought and application.

Secretary Adams addressed the audience, commencing on poultry, as the subject had been suggested by the reading of a notice of the New Hampshire Poultry Association at Concord.

REMARKS BY SECRETARY ADAMS.

A love for the business was the first requisite to success. One thing which recommended the business was the fact that those

who were not classed as able-bodied men might engage in it, also the women and children. Poultry and eggs, when sold, do not carry away from the farm much valuable plant food, while milk reduces the phosphoric acid, without which the seed and kernel cannot be matured. If milk is sold directly, grain must be bought with which to restore the loss of fertility, whereas, there is little loss in selling butter or cream, retaining the balance. No kind of grease will increase vegetation to any extent. Oats, clover, and corn stalks properly enter into the organization and growth of all young animals. If anything be sold from the farm, it is better to sell corn than hay, as each ton takes \$6.00 cash value from the soil. He illustrated by relating conversation had with those who have sold hay to their hurt. He advocated growing clover hay and feeding it out on the farm. The English people get the best wheat following clover, as its roots pump up nitrogen and fit the soil for that crop. Peas and beans are good crops to grow, and to purchase for cattle food when prices rule low. Fertilization must be induced by the rotation of crops in some cases, as there is a limit to the profitable use of mineral manures unless this is done or vegetable matter in some way applied.

At the suggestion of W. W. Burbank, master of the Grange, thanks were voted the Board and Mr. Walker for the effort they had made in coming, and for their interesting and instructive entertainment. This was made unanimous by a rising vote. The ladies of the Grange had, during the exercises, prepared suitable refreshments in the anteroom to which all were invited at the close of the meeting.

MEETING AT WILTON.

The Wilton meeting, held December 16, had been well advertised and all arrangements made for a successful meeting, but the severe storm of the day prevented a large attendance. Even the speakers were unable to be present and Secretary Adams with the farmers and milk producers of the immediate vicinity occupied the forenoon in a discussion on feeding for the production of milk. Prof. Babcock, the milk inspector from Boston, arrived on the afternoon train and addressed the audience in a highly in-

structive manner. Remarks on various features of the milk business were made by Messrs. Whiting, who have built up a large and permanent business in the village of Wilton, in milk and dairy products. Although the attendance was small there was a marked interest in the subjects under consideration, and doubtless good results will follow.

MEETINGS AT JAFFREY AND FITZWILLIAM.

A meeting was held at Union Hall, East Jaffrey, January 4, and at the forenoon session the Board was represented by J. S. Perry, of Rindge, member from Cheshire county, George S. Philbrick, of Tilton, member from Belknap county, and Secretary Adams. The time was occupied with general remarks. There was an increased attendance at the afternoon session and the talking force was increased by Joseph Farnum, of Peterborough, member from Hillsborough county.

Mr. Perry presided and gave an interesting account of his experiments with commercial fertilizers and their application, and his method of conducting farm operations generally, throwing out many valuable hints and suggestions.

He was followed by Mr. Farnum, who urged the importance and advantage to farmers of keeping more strict and systematic accounts with their fields and their animals, in order to ascertain to a certainty whether the balance is on the right side of the ledger at the end of the year. He also gave some facts and figures in relation to reclaiming bog meadows as follows:

“Drainage has become one of the most important of farm operations and is being more and more employed by the intelligent and progressive farmers throughout the country. In former times when land was cheaper and more productive than now, the necessity for drainage did not exist and land too wet for cultivation was considered as so much waste land. Now that the virgin soil has been exhausted of its power to produce large crops, except by the outlay of large sums for fertilizers, the condition of things is changed, and that which was considered waste land becomes the most valuable.

“Drainage consists in the removal of surplus water from the

soil. Several methods are employed to accomplish this result which I will not attempt at this time to discuss but will simply give the result of an experiment in this line which has come under my observation.

“In an out-of-the-way place, on a certain farm, is a tract of several acres of wet land which, ten years ago, was sold at \$1.25 per acre. It produced only the cheapest quality of meadow grass, and that only on small patches, the larger portion being coarse, rank weeds, unfit for any purpose. What was cut was largely used for bedding and had to be polled off the ground, costing all it was worth to harvest it. In 1883 the owner commenced to improve it.

“The first step was to dig ditches three feet deep, three feet wide, and thirty rods apart one way and six rods the other. This secured drainage to the depth of eighteen inches. He then removed the turf, piling it in rows or sections to require as little handling or transportation as possible. All stumps, roots, logs, and limbs that would interfere with the plow were also removed.

“One acre was treated in this way the first year at an expense of about \$250. The following spring the turf removed the previous year had become well rotted and dried and was easily burned upon the ground, together with the stumps, roots, etc., removed therefrom, and the land then plowed, cultivated, and planted.

“At the same time another acre alongside was undergoing the same process of ditching. The crop raised on the acre first improved this year was principally onions which were sold for \$400, with \$25 income from early peas, \$17.50 from early beets, and \$25 from cabbages, making a total income of \$467.50, besides 30 bushels of carrots and $6\frac{1}{2}$ bushels of potatoes unsold. The next year $803\frac{3}{4}$ bushels of onions were raised and sold for 75 cents per bushel, \$602.81; $4\frac{3}{4}$ tons of carrots were sold for \$71.25; early peas, \$43.50; beets, \$27.67; 56 bushels of potatoes, \$28; 30 bushels parsnips, \$22.50; celery, \$255; making a total of \$1050.73, or about \$350 per acre for the three acres cultivated.

“Enough of each variety of the crops raised, besides some other

garden truck, such as green corn, cucumbers, squashes, etc., were reserved for family use and were not reckoned in the above amounts.

“The expense of cultivating after the ground was put in condition for that purpose was about \$350 for the three acres, which includes the constant labor of one man eight months, one horse a portion of the time, fertilizers and seeds, and leaves a clear profit of \$700, or \$233.33 per acre.

“Ashes were largely used for fertilizer, with some hen manure, but chiefly home-made fertilizers compounded from the raw material were employed. This year more ashes will be used for it is believed they are the best and most economical fertilizer the market affords.

“This case is not cited as a remarkable example in this line, but simply to show what has been done in the way of improvement and securing a profit therefrom. Undoubtedly there are many such places which might be similarly improved and made to return handsome incomes to their owners.”

Mr. Philbrick gave minute details of his experiments with various kinds of food for cows during the last five or six years, with a view to discover that which will give him the greatest return for the least expense. His remarks were interesting, and were made with an assurance which carried weight to his listeners. The facts presented will be published in a paper prepared by Mr. Philbrick for this report.

Mr. Adams's remarks during the afternoon were brief.

At the evening session a fair number were present and listened to Secretary Adams, on “Stock Breeding” and “Improvement of Farms.” The remainder of the session was occupied in remarks by Peter Upton, Mr. Runnels, and several young farmers of the town, who manifested, by their suggestions and queries, that they were wide awake, and interested in farming. Jaffrey is a well-farmed town, with an encouraging agricultural outlook.

January 5 a meeting was held at Fitzwilliam. The weather was unfavorable, and the attendance at the afternoon and evening sessions was not large. The Board was represented by Messrs. Perry, Philbrick, and Secretary Adams. Samuel Kendall, a well-known farmer of the town, acted as chairman. In the afternoon

the secretary gave a half-hour's talk on general topics, after which Mr. Philbrick discussed the feeding question. At the evening session Mr. Adams discussed methods of increasing the fertility of the soil, presenting as a leading thought that the farmer who would improve an exhausted farm must sell such products as bring a large return in proportion to the loss sustained by the soil in producing them. Mr. Perry followed, and urgently pressed the suggestions of the previous speaker, and gave some illustrations of the argument in practical experience.

Mr. Philbrick presented his paper upon "Specialties in Farming."

The meeting was brought to a close by remarks to and in behalf of farmers' sons, by Messrs. Perry and Adams, followed by a few words from the chairman and Hon. A. J. Blake, of the town.

MEETING AT CONCORD.

A meeting of the Board of Agriculture was held at City Hall, Concord, January 13, the day following the annual meeting of the Dairymen's Association. It was called to order by Chairman Humphrey, who, in opening remarks, alluded in brief to the means and methods for the improvement of agriculture and of the farmer's condition, mentioning specially the advance that had been made in the quality of live stock kept or raised by the farmers in the last half century, largely through the introduction of thoroughbred males. He complimented the Grange as an organization which has contributed of late to the general condition of the farmers of the country, and also alluded to the fairs as beneficial, but often being managed more for the benefit of personal and political combinations than for the good of the cause of agriculture.

He introduced, as the first speaker, Geo. H. Whitcher, superintendent of the college farm at Hanover, who proceeded, in the half-hour allotted him, to give a practical talk upon "Fertilizers."

At the conclusion of Mr. Whitcher's remarks, Hon. Mortimer Whitehead, of New Jersey, lecturer of the National Grange, was introduced, and talked earnestly and uninterruptedly for an hour and twenty minutes. He opened by expressing the pleasure he

experienced in being permitted to address even a small gathering of intelligent New Hampshire farmers under the auspices of the State Board of Agriculture, complimented the practical and instructive talk of the gentleman who had preceded him, to which he had listened with pleasure, offered a few suggestions of his own in connection with the same subject, and then proceeded to devote his attention to the subject which he had primarily in view, and upon which he was expected to talk, the necessity of organized effort among the farmers of the country.

No mere abstract would do justice to his address, and for that, even, there is no space in this connection. It must suffice to say, that in showing what the Grange has already accomplished in the way of bringing the farmers of the country into community of thought and unity of action, and the actual results already effected through such combination in promoting their welfare in matters of business and of legislation, he demonstrated the great value of the institution, and the reasonable hope for greater and grander work through its instrumentality in the future.

Hon. John D. Lyman, member of the Board from Rockingham county, was the first speaker in the afternoon. He gave a practical talk on "Forestry," which subject he has given thorough investigation, and his address contained valuable statistics and facts.

Mrs. A. G. Marshall, of Dunbarton, followed with a poem entitled "Rural Jingles." The production was meritorious and well received. Hon. Edward Burnett, of Southborough, Mass., delivered an address upon the Channel Islands and it is regretted that it cannot be given in full. We print the following abstract as reported to the "People and Patriot" by Mr. Gerrish of Webster:

THE CHANNEL ISLANDS.

Having visited these islands yearly for the last four or five years, I purpose to give an account of them much the same as though I had dropped into a neighbor's and was relating my experience in a familiar talk.

The railroads arrive at and leave London much like spokes in the hub of a wheel. Taking the Southeastern, the traveler

reaches Southampton in about three hours. The strong docks at Southampton, which is a large seaport, are wonderful works, and so strong that those of our seaports look puny in comparison. Those of Liverpool and St. Heliers are somewhat similar; although in the British Channel the islands are really not so very near to England, being only twelve miles from the French coast, and 125 from England.

Navigation in ordinary weather in the British Channel is uncomfortable, to say the least, and once out of the ten times we have crossed the channel the weather, to use the English expression, was especially nasty. On account of the roughness of the sea small iron steamers of about a hundred tons' burden are used. The islands in order of their size are Jersey, Guernsey, Alderney, Sark, and Hern. About 100 miles out we pass Guernsey and Alderney, the most noticeable thing being the high sea-wall built out to assist navigation. These are built of solid blocks of granite. One is next much impressed with the beautiful flowers—camellias and roses—which grow in the open air with little care.

Arriving at Peter's Port, to leave the mails, we notice the massive sea-wall extending out to sea a long distance. These massive walls of granite, ironed together, extend also around the shore, with an esplanade on which the carriages and trucks drive, with occasional turnouts. The tide in these bays runs forty feet high; consequently the stairway landings leading to the driveway are three stories high. The accommodations on the steamers are poor, and the delicious fruits displayed on the shore are very tempting after such a rough passage in the autumn months. These fruits are sold by women, who sell them from baskets, both plums and grapes.

The Island of Jersey is twelve miles long and five wide, St. Heliers being the seaport. We see docks, locks, and a sea-wall, inclosing twenty acres of water. These superb works of granite cost \$15,000,000. Trade being free here, the harbor dues are the only means of support. They amount to from \$75 to \$150 a trip to packets, making an essential element in figuring the profits of a voyage.

The Island of Jersey has thirteen parishes, the language spoken here being the pure French of the eleventh century, that now spoken in France being the dialect.

Around the old part of St. Heliers are drives on top of the quaint old wall, wide enough for a single track only, turnouts being made once in fifty yards or so, where the drivers stop and utter a loud and peculiar cry sounding like "wi la"—which means turnout. King's street has a narrow sidewalk of not more than fifteen or twenty inches, although the principal street.

Here are displayed various wares of mottled granite. Foreign venders come here to meet the tourists from England and Scotland, who linger for months in this charming spot. Tourists from other places may also be found here. The several parishes are like the towns in a country. Here rural and agricultural pursuits are carried on, and the neatness and economy are striking, every inch of land being utilized. The roads are macadamized and solid, the law governing the width of wheel used on them. The sides of the road are clean kept, the grass running quite to the walls or hedges. The houses are mostly of stone, with either thatch or tiling for roof. House, stable, and greenhouse are nestled together, the greenhouse and the grapes being in care of the mother, and the proceeds of sales belonging to her. Muscat, Hamburg, and Sweetwater grapes are delicious and, with the potatoes raised here, have a reputation equal to that of the cattle. The grapery and greenhouse are surrounded with flowers, the whole wearing a cheerful aspect.

The cows are as much thought of as though members of the family. The women tether and care for them. They seldom wander loose, but are fastened with a rope, an iron pin being driven into the ground, which is moved by the women in charge three times a day. The cows are tethered in rows, and it is a charming sight to see them mow their swath.

The farms are of but a few acres each, and are fenced with walls of earth with a path on top, the sides being covered with grass. The peasants are quaintly dressed. They wear a shawl and bodice, with short skirt. Their shoes are thick, with a heavy wooden sole, and are worn over a warm sock. The women are strong, and quiet, stay-at-home bodies, speaking only French, while all the men speak English, except when trading they will switch off and talk French with the mother about selling the cow. The fields are highly cultivated, 60,000 people

being supported on thirty square miles, besides exports amounting to between one and two million dollars a year.

No other country supports 2,000 people to the square mile. The best lands rent for from £25 to £40, annually, per acre. This seems almost incredible, but they are highly enriched by manure and seaweed, and especially adapted to raising early potatoes, as there are streaks of warm lands.

When there is a difference of ten days or two weeks, it makes quite a difference in the price of potatoes, and suitable land rents readily for \$300 an acre. The farmers rival each other in seeking the first early potatoes. A few years ago, a farmer was belated in spring on account of being away from home unavoidably ; so he concluded to take his two servant girls to help him, and plant his potatoes with the sprouts uppermost. Although behind his neighbors he gained 20 days and came out ahead of them. They plant their potatoes very close, and raise by hand labor wholly. This man's experiment changed the whole business of early potato raising on the island. They now leave two sprouts on the end of the potato and sprout them sitting up on end in crates placed in a warm place. The average yield is five or six hundred bushels per acre, often selling for \$2.50 a bushel. In St. Mary's and St. Owen's and other parishes this is practiced. The crop is planted in February and harvested in June.

The cattle of the island are fed at the stable in winter and nothing is lacking in care. They are fed large quantities of roots, mostly the parsnip, sliced and sprinkled over with linseed oil cake. The rainy season is in February and March, April and May being dry months. Cabbages, cauliflowers and broccoli are raised, the latter being as common on the table as the potato. I was favorably impressed with the care which the young stock received. They never lose their thrift. The calves are turned to grass at eight weeks, but their milk is not dropped. They have small feeds of milk and often. Overdoses are as bad for calves as the feeding of cold milk. A calf will soon learn to be a glutton and he will become like a syringe. After going out of doors the calves have oatmeal gradually mixed with their milk.

Coal is used for fuel on the island, and the little wood used is

raised in hedges by the roadside, and otherwise, as they plant quick-growing shrubs which are cut and carried to the shed in bundles. When a tree blows down, its several parts are sold at auction for wood and timber, by the authorities. They are a thrifty and economical people. The little timber used in roofing their stone houses is mostly brought from New Brunswick, rafters being only $1\frac{1}{4} \times 4$ inches, supporting the straw roofs. The property, after the old feudal system, runs from the father to the oldest son.

It is extremely difficult for a stranger to buy land among this thrifty, but still unenterprising, people. They plow their small fields with such plows as we laid aside fifty years ago, using one horse in front of the other. The horses are Normans, and are handsome and strong. They mow either by hand or with a sickle. Their harrows, however, are good—the improved English chain harrows. Their standard snperphosphates are of high grade, and their fertilizer laws strict, a fine of \$500 being imposed if not up to the standard.

They sow nitrate of soda on the grass, and, with their heavy dews and frequent showers, its influence is immediately apparent. The flowers and flowering trees are much to be praised, magnolia and tulip trees being large. A friend picked 60 varieties of wild flowers in a single afternoon.

The Jerseyman is shrewd, and if you buy you are expected to partake of the hospitalities of the house, and they seem offended if you do not. You may bind the bargain with a glass of milk, or, if you prefer wine or brandy, you can have it. In buying fifteen or twenty heifers I preferred to drink the milk and take bunches of beautiful Hamburg grapes, which I did until my buggy was well filled with bunches on the bottom.

The speaker gave an account of his experience in buying cows and bulls which was very interesting. They seldom use a bull on the island after he is three years old, as the women mostly care for them and they do not wish them to get cross and dangerous. It is about fifty-three years since the first cattle were imported. He did not approve of breeding for color or pedigree alone, but wished for a strong constitution. Jerseymen were now breeding from butter cows. Cows were sent to Eng-

land as early as 1825. These were shipped from the Alderney Island, although there probably were not a hundred cattle there. They were brought from both islands, but mostly from Guernsey. In either case the first cattle sent from there were called Alderneys. The Guernseys are larger than the Jerseys but not as uniformly bred. Their butter surpasses everything for color, although it is thought not to be quite as solid as that of the Jersey. Guernsey breeders on the island have not been sufficiently particular about selecting bulls, but are breeding better of late years. Guernsey, as well as Jersey, is also a wonder on account of its vegetables and flowers.

Prof. C. H. Pettee, of the Agricultural College, made remarks, and the meeting was closed.

SPECIAL MEETING AT CONCORD.

A special meeting was held at the office of the Board of Agriculture, State House, Concord, February 23, and called to order by Hon. Moses Humphrey, chairman. Present, Messrs. Mason, Lyman, Philbrick, Parker, Carr, Whittemore, DeMeritte, Perry, and Farnum, comprising the full Board. On motion of Mr. Philbrick, Mr. Farnum was elected secretary *pro tem*. Chairman Humphrey stated that the object of the meeting was to appoint a secretary to fill the vacancy occasioned by the death of James O. Adams, and for the transaction of such other business as might properly come before the meeting. Mr. Mason referred to the late secretary in a feeling and appropriate manner and offered the following resolutions which were unanimously adopted:

WHEREAS, In view of the loss we have sustained in the decease of our friend, associate, and the efficient secretary of this Board, Hon. James O. Adams, and in view of the great loss sustained by the farming interests and public at large, therefore

Resolved, That we are only doing justice to the memory of the deceased in saying, that in his removal from our midst we sincerely mourn for one who well deserved our respect and regard. A genial friend, kind and affectionate associate, efficient and thorough officer, he deserved and sustained the entire confidence of this Board through the long term which he officiated as secretary.

Resolved, That the family of the deceased have our sympathetic condolence in their severe affliction, and we commend them to Him who never errs in His dispensations.

Resolved, That these resolutions be entered on the records of this Board and that a copy be sent by the secretary to the family of the deceased, and to the local papers for publication.

By unanimous consent Rev. A. C. Hardy, a member of Capital Grange No. 113, of Concord, presented resolutions from that Grange recommending Nahum J. Bachelder, secretary of the State Grange, for the position of secretary of the Board of Agriculture and made brief remarks in support of the resolutions. Members of the Board and other gentlemen present made remarks in regard to the election of secretary, after which a ballot was taken and Nahum J. Bachelder was declared elected. Mr. Bachelder was introduced and made brief remarks in acceptance, and the oath of office was duly administered by Mr. Mason, of the Board. Voted that the secretary commence his duties March 1. A. R. Ayers, of Concord, expressed the thanks of the Grange for the courtesy which had been shown them. No further business appearing the meeting was adjourned to the call of the secretary.

SECOND ANNUAL MEETING OF THE GRANITE STATE DAIRYMEN'S ASSOCIATION.

The second annual meeting of the Granite State Dairymen's Association was held in the city of Manchester, January 12 and 13, 1886. The meeting was called to order by the president, J. M. Connor, of Hopkinton, who delivered the following opening address :

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen of the Granite State Dairymen's Association :—

We are assembled at this second annual session of the Granite State Dairymen's Association to consider the butter, cheese, and milk industry of the State. Every consideration of state pride, of individual prosperity and agricultural advancement, points to the necessity for such an organization, and that it receives the cordial advancement and substantial aid, not only of

those who make the products of the cow in these three departments a specialty, but alike to the vender and consumer. The losses and perplexities of dealers in an inferior article are well known to the trader. Every consumer should look with favor upon an organization which seeks to promote this industry, to improve the quality and quantity of these articles of universal consumption, and to open and expose the frauds and imitations now so universally afloat upon the markets, and pave the way whereby producer and consumer may be brought nearer together, and confidence restored by the manufacture and sale of none but first-class products.

The rapidly changing modes of transportation bring the vast productions of the boundless West to the very doors of the East, overcoming space and cost of transportation to a marvelous extent, thus bringing the Eastern farmer into a relation little dreamed of a few years ago. Wholesale houses are being established in every city and town of importance in this Eastern section, for the sale of beef, pork, and mutton, slaughtered 2,000 miles westward upon the plains and mountain slopes, arriving here in better condition than the meat in the country butcher's cart which was slaughtered on his own premises. How our farmers are to stand such competition becomes a subject of great importance. The dairy industry of New Hampshire and of New England is brought into a similar condition. Maine, New Hampshire, and Vermont have 485,000 cows, or 6,000 less than the single State of Wisconsin. Iowa has 1,541,122, or double the cows kept in all the New England States. The West is rapidly adopting the improvements of the East, both of machinery and breeds of animals. These conditions are undeniable. But with the characteristic pluck and energy of our New England people shall we make no effort to maintain our standard and overcome obstacles as we have been wont to do in the past? The agitation of the dairy interest through the press, in the Grange and the Farmers' Club, has worked a decided change within a short period. The introduction of the silo, warmer and better barns, the more liberal use of grain, the introduction of improved dairy implements, with the laws they teach and enforce, also a better understanding of the laws which must be observed to insure good results in the

manufacture of butter and cheese and the handling of milk, are the instrumentalities by which this change has been wrought. The number of good butter-makers in the vicinity of our cities and larger towns is rapidly on the increase, and dealers will tell you that they have from this class of farmers an article that cannot be excelled anywhere.

We desire again to call your attention to the making of farmers' cheese. This product commands at least 30 per cent more than that made by the associated or factory system. Here is a margin in prices that finds a parallel nowhere else in dairying, or, indeed, in any farm products. Farmers living so remote from markets as to exclude them from selling butter direct to customers, ought to turn their attention more to this important branch of dairying.

Within a very recent date several butter factories have been put in operation in our State. Scarcely a community but is now agitating the expediency of organizing in this direction.

Associated dairying should be made all the term implies, that is, each patron should be a *bona fide* owner according to the extent of his business. He will thus be more likely to improve his herd of cows, feed better, and likewise educate himself and take a deeper interest in all that concerns the establishment.

The alarming increase in the manufacture of all sorts of compounds for butter, and the possibilities in the future, place dairying in jeopardy. Some ten years ago the first patent was issued for a method of making artificial butter, but not until within three or four years has it been carried on to any great extent. Now, Chicago has become one of the largest producers of the world. It has six large firms engaged in this business, which turned out the past year more than 17,000 tons. One firm alone makes two freight carloads each day. Other large cities are also extensively engaged in this enterprise. One firm in New York made during the past year 2,000,000 pounds of butterine. In Boston, Mass., Providence and Pawtucket, R. I., and other Eastern cities, firms make it by the million pounds. Hon. Norman J. Colman, commissioner of agriculture, is making strenuous efforts to collect not only dairy statistics of the country, but also to lay bare the enormity of this traffic in imitation butter, and as a practical

agriculturist whose sympathies are on the side of American farmers, we look to him for some recommendation as a solution of this grave matter. Laws have been enacted in many States to stamp out or punish fraudulent sales of these compounds, but as yet they have had little or no effect. So long as a large per cent of dairy butter is of inferior quality and decidedly distasteful, unquestionably inferior in every way to the better grades of imitation butters, it does not behoove butter-makers to ask protection against what they characterize as unwholesome compounds. Public opinion will never enforce laws against this to protect an industry brought into such disrepute.

A vital question for us to consider at this session is, how to make this association a power in the State, how to enlist the sympathy and co-operation of progressive dairymen, how to bring our best thoughts and experiences into tangible form, so that we and others who are looking for some guide and advice may be profited thereby. I would suggest that some of the leading subjects connected with dairying be made a matter of assignment to different individuals and, with the year before them for preparation and experiment, report at the next annual session. Allow me to suggest some of the themes for assignment :

1. Best breeds of cows for the three departments, butter, cheese, and milk.
2. Best methods of feeding for these departments.
3. Value of the silo in the production of butter, cheese, and milk.
4. How far may soiling be profitably employed in the management of cows?
5. Best method of making butter.
6. How to make farmers' cheese, and why more attention should be given to this branch of dairying.
7. Milk: best methods to produce it, and why sell whole milk in preference to making butter and cheese.

These and kindred subjects might be assigned to different persons, and by having time to deliberate and gather facts much useful knowledge might be obtained. We affirm, as our opinion, that as good butter and cheese can be made in the Granite State

as in any other. If our pasturage is inferior in some localities, the deficiency must be supplied by grain or soiling, and it can be done with a profit. We also affirm that just as good butter and cheese can be made by individual dairy, no matter if not more than three cows, as can be made at the creamery with all its appliances. Rules of cleanliness, laws of temperature, all the details from first to last, must be as strictly obeyed in the one as the other, and they may be in the former as well as the latter.

Let us endeavor to put this industry, the most delicate, the most profitable, and the best calculated to restore fertility to our soils, upon a better basis. Let us work and labor together for self-advancement, and at the same time keep in view the broader philanthropy, that helpful spirit, which would make two blades of grass grow where but one grew before.

On motion of J. O. Adams a committee was appointed to consider suggestions made in President Connor's address, as follows: Messrs. Rossiter, of Claremont, Rollins, of Bedford, Gerish, of Webster, Waterhouse, of Epsom, and Tallant, of East Concord.

The reading of the by-laws was called for and an invitation was extended for memberships, the secretary saying that every member would be entitled to a report of the proceedings.

Mr. Waterhouse moved that a committee of five be appointed to report a list of officers for the year, which was appointed as follows: Messrs. Carr, of Haverhill, Humphrey, of Concord, Locke, of Barrington, Parker, of Merrimack, and Philbrick, of Tilton.

Afternoon Session.

The treasurer's report was read and accepted, showing a small balance in the treasury. Secretary Adams also read a report covering all the meetings held during the past year. The committee appointed for the purpose reported the following list of officers of the association: President, J. M. Connor, of Hopkinton; secretary, J. O. Adams, Boscawen; treasurer, Charles N. Clough, Canterbury; vice-presidents, I. W. Springfield, Rochester, and George B. Williams, Walpole; trustees, Strafford county, C. H. Waterhouse, Barrington; Sullivan county, P. M.

Rossiter, Claremont ; Rockingham county, Charles H. Hayes, Portsmouth ; Hillsborough county, J. T. Burns, Milford ; Cheshire county, S. W. Buffum, Winchester ; Merrimack county, J. L. Gerrish, Webster ; Belknap county, Thomas Grantham, Centre Harbor ; Carroll county, Dr. Alonzo Towle, Freedom ; Grafton county, J. E. Carr, Haverhill ; Coös county, L. T. Hazen, Whitefield.

Secretary Adams read a paper from F. F. Fisk, of Webster, touching upon the influence of climate and food on the quality of butter, and the necessity of guarding pure butter by legislation regarding adulterations, querying whether coloring matter should be considered an adulteration. Mr. Waterhouse moved that a committee of three be nominated to confer with our representatives in Congress on this subject, which motion was adopted.

The committee on assignment of topics for the next meeting reported as follows :

Best Breeds and Feeds.—L. T. Hazen, Whitefield ; J. G. Tallant, East Concord ; F. F. Fisk, Webster.

Value of the Silo.—D. H. Goodell, Antrim ; W. F. Daniell, Franklin ; J. T. Burns, Milford.

Soiling.—R. M. Rollins, Bedford ; S. C. Ham, Barrington ; Jason T. Burns, Milford.

Butter and Cheese.—C. H. Waterhouse, Barrington ; J. M. Connor, Hopkinton ; George B. Williams, Walpole.

Milk.—Charles H. Hayes, Portsmouth ; P. M. Rossiter, Claremont ; Charles N. Clough, Canterbury.

A good deal of discussion arose on adulterations, after the committee's report was read, Messrs. Humphrey, Carr, Adams, Waterhouse, Kimball of Bellows Falls, Whittier of Raymond, and others, bringing out the several temptations, to dealers, and methods of fraud. Mr. Humphrey thought dealers made more money on this than on good products and said it would be easier to legislate than to enforce laws, the same as in the liquor traffic, and other adulterated articles. An instance was related of butter in prints used to incase a miserable compound, which was apparent on cutting the print open.

Mr. Goodell had no doubt that cleanliness was observed in

the bogus butter factories and that it was better than some real butter that was offered; nevertheless, if injurious compounds were used in its manufacture it should be condemned and suppressed if possible. The "bogus butter" talk was long and interesting but the bulk is omitted for want of space.

Prof. Pettee, of Hanover, was called and made some remarks about the inability to make winter butter with sufficient color. Mr. Gerrish said he was able to make good colored butter in winter, and never colored but one churning. All that was necessary was the right breed, well weeded as to individuals, and good feed. President Connor said that this was possible, and it was something we had got to come up to in our practice. He knew that Mr. Barnard, of Hopkinton, could do it with his herd of cows. He had sufficient proof of it.

Mr. Tallant thought these experience meetings and the improvement got from the impetus thus gained would be surer than any legislative aid. He believed that Mr. Fisk was right when he said that the best butter would not keep well. He believed that butter began to "go back" in a day or two after it was made. Bogus manufacturers could not improve on a first-class article.

Mr. Tallant made some interesting remarks about the care of Jersey cattle. He expressed doubts about telling the kind of butter a cow would make by the color of skin, and many of the tested Jerseys had poor escutcheons.

Mr. Riddle, of Manchester, thought if all bogus butter was taken at once from the market there would be a butter famine. He deplored that there was so much poor real butter made in New Hampshire.

The president said, in closing the discussion for the afternoon, that there were adulterations in woolen goods, leather, etc., and now we had got it in butter. We have got this to pass through in our dairy history, and no one can predict where it will land us.

Evening Session.

The first speaker was Hon. D. H. Goodell, of Antrim, who spoke of the changed condition of agriculture and mechanics

from the old-time standpoint. He spoke of the Jersey and Holstein cattle as dairy animals and producers of milk, and the capacity of the Holstein for standing a continuous test as compared with Jerseys, which brought Mr. Tallant to his feet to defend the Jerseys, citing "living witnesses" that had survived the heavy feeding. Mr. Goodell continued in defense of the larger breed, and said he had known small men, cows, and horses, that consumed as much as larger ones. He spoke favorably of ensilage; didn't know but it might be a good way for some farmers to pluck off the ripest ears and put the remainder in the silo.

So much was said at this meeting concerning methods of putting in, weighing, and feeding ensilage, that we can make little use of the matter with the expectation of giving much that is new, except that it is gaining in favor, that it may be put in either whole or cut and much slower than formerly was supposed, that the covering of plank may be omitted, provided a foot or more of bog hay can be put on top, and sand or loam used for weighting, at a depth of from one to three feet, which is removed and used for bedding and absorbent in the stable. Also that mature corn makes the best ensilage and frost-bitten the poorest. We cannot do justice to the various gentlemen that we should be glad to name in connection with this matter of ensilage talk, having so much matter at the different sessions to condense.

The treasurer thought he was better off to raise twenty-five or thirty acres of field corn than a less number of ensilage with the same amount of manure. Mr. Hazen, of Whitefield, gave some very interesting figures, judging 350 tons, raised at a cost of \$399, to be equivalent to 150 tons of good hay. His cows gained from 50 to 80 pounds of milk a day, on commencing to feed it to some more than 100 cows. Mr. Hazen showed good ensilage and grain butter made from farrow cows having no hay feed. Butter was shown, also, by Messrs. Waterhouse, Rollins, Barrett, and the Gerrish Brothers, and dairy cheese by Mr. Carr.

SECOND DAY.

The day opened colder than Tuesday, but there was a fair attendance and a large amount of talk, full of meat for those

present. Mr. Connor announced Messrs. Adams, Daniell, and Hazen, as the committee nominated as per yesterday's resolution to confer with congressmen.

Mr. Carr introduced the following resolution which was adopted: "Whereas, large quantities of imitation butter have been sold in this State, and as said compounds are deleterious to health and damaging to the dairy interests, therefore resolved by the Granite State Dairymen's Association that thanks are due to the author of the 'pink butter bill' and to the Legislature for passing the same, it giving evidence to the sight so that the imitation butter can be easily detected."

Mr. H. K. Slayton, of Manchester, spoke at length on what he had learned of the oleomargarine trade. It was damaging to dairy interests to have oleomargarine and butterine sold at low figures, and it was perfectly competent for our Legislature to pass laws to protect the health of our population. He knew that the grease carts picked up stuff and extracted the oleomargarine oil and sold it for about seventy cents a gallon. He would not say where this oil went, but all the large cities manufactured bogus butter and sold it to boarding-house keepers and others. It was even mixed in different proportions with creamery butter. Hucksters and shysters would peddle it and make money at it. Evidence for detection by the sight was good, and our Legislature hit the nail right on the head. If every State would adopt it, one hundred and fifty million pounds less of the stuff would be manufactured yearly. Even cheese was adulterated with lard, which was damaging to our foreign trade.

His Excellency Governor Currier came in during the forenoon, and was introduced, and spoke briefly on the agricultural and mechanical interests of the State.

Mr. Hazen thought agitation might do more against the bogus butter business than legislation. The constitutionality of the bill before cited was discussed, Mr. Hills, of Plaistow, and others, expressing doubts, which were quieted by a remark from the governor, regarding his knowledge and opinion on the subject, which was received with applause. He thinks the law will stand the test of the courts.

During the forenoon Mr. Littlefield, city inspector of milk,

came in and kindly made an analysis of a sample of milk just taken from one of the carts on the street, with instruments used by inspectors, which produced an interesting talk on milk and skimmed milk.

Afternoon Session.

In the afternoon a promiscuous talk was enjoyed after the formal discussion of "Cheese Interests." Mr. Gerrish said he had acquired a taste for cheese made from the Channel Island cattle, and Mr. O. H. Leavitt, of Manchester, said that the Winthrop (Maine) factory took first prizes for cheese, made from Jersey cattle. They had continued to make and sell it successfully for the last eleven years. S. C. Ham, of Barrington, spoke in an interesting way of his butter business, having made about 5,000 pounds the last year, from an average of sixteen or seventeen cows. He and Mr. Hills also gave their experience in soiling.

Mr. Hills had one cow which had not been to grass for six or seven years. He soils with grass, followed with Hungarian and rye. A committee was appointed, consisting of Messrs. Hazen, Rollins of Bedford, Gerrish, Waterhouse and Barrett of Concord, to confer with the officers of the New Hampshire Agricultural Society concerning premiums to be offered at the next fair.

THIRD ANNUAL MEETING.

The third annual meeting of the Dairymen's Association was held at City Hall, Concord, January 11 and 12, 1887. There was a fair attendance of leading dairymen of the State, and also several gentlemen representing the Poultry Association, who were holding their first annual meeting at Phenix Hall.

President J. M. Connor, of Hopkinton, called the meeting to order and delivered the following address:

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen of the Association:

We are assembled in annual session, organized under the title of the "Granite State Dairymen's Association," to consult

together how best to develop and make profitable this important and most intricate branch of New Hampshire farming. Dairying has not assumed the proportions in our State that exist in many others, yet the progress which marks its development within a recent period warrants the belief that it is just in its infancy, and the marked success attending those who have given proper thought to all the details required, and adopted methods which are indispensable to success, warrants the belief that it may be so enlarged and improved upon as to place New Hampshire among the front ranks in the dairy column.

There are men to be found in every town in the State who have as clear a conception of methods of breeding and feeding, of all details required for successfully conducting the production of butter, cheese, and milk, as can be found anywhere. What is required to strengthen all such, to aid those who may be struggling for light and knowledge, is organized effort. This must not be lost sight of. Whoever ignores the importance of organization strikes at the very root of progress. It may cost a little time and money, but to the individual and the community it is always a safe and sure investment. He that has any state pride, or any regard for his own pecuniary and intelligent advancement, cannot ignore this position.

RESTORING THE FERTILITY OF OUR FARMS.

We believe the position cannot be controverted, that the making of butter, and, as an accompaniment, the raising of pork, are the best means yet devised to restore lost fertility. Sheep and all young stock need a large amount of exercise in summer, so that pasturage seems indispensable, but with cows, while good pasturage is very desirable, yet success has attended many of our best butter-makers who place but little reliance upon the pasture. The restoration and improvement of our tillage land is a problem all are trying to solve. We doubt if commercial fertilizers can be relied upon to accomplish this result. They are to the soil what stimulants are to the human system, not reliable to build it up.

The butter from the cow, and the pork product from the hog by their side, carry but a fraction of the fertilizing elements off

the farm, and they are the best machines kept on the farm in form of stock by which to convert foods of large fertilizing properties into the very best of manures for all kinds and conditions of plant growth. We commend these suggestions to that numerous class who are looking in search of some way out of this fertilizer problem.

THE BUTTER MARKET.

The year opens with flattering prospects for the dairy interests. Notwithstanding the enormous production of butter and cheese in our country, coupled with the immense quantity of imitation butter thrown upon the market, we start in upon the new year with a smaller surplus at all leading points than for some time past. All fears of an overproduction of good butter are groundless. We doubt if ever such a time arrives in this country. Notwithstanding the constantly increasing knowledge that is developing in the science of butter-making, the tastes of dealers and consumers keep pace with this improvement. What would pass for first-class butter ten years ago would to-day make an inferior showing. The man who never made a pound of butter or cheese in his life may be a far better judge of quality than he who has been engaged a life-time in its production.

IMITATION BUTTER.

A long and exciting contest over the frauds and imitations which have sprung into existence of a recent date, which excited fears of peril to this industry, has culminated in a law enacted by Congress placing some restrictions upon these "bogus" manufactories. While this may be the most alarming peril upon a genuine industry, we can conceive of many other branches of agriculture that are likewise in a degree of peril from adulterations and imitations. So far as the plea comes for the enactment of such a law to protect the stomachs of consumers from injurious consequences, we might cite the poisonous compounds and mixtures under the form of spirituous liquors which every candid man will acknowledge endangers the stomach, yea, the reason of our people a thousand-fold more than all the butter adulterations ever practiced, over which Congress might throw out its cautionary signals, and demand a little branding done.

The tiller of the soil, though he may not always prepare his product for market as he ought, yet, such as it is, it comes free from adulteration. Let a guarantee be put upon all articles of wear and consumption, setting forth just what enters into their composition. The greatest good which will result from legislation relative to fraudulent butter consists in its paving the way for yet broader work to protect all classes from fraudulent mixtures, that all may know just what they are purchasing, and then as free men, with their eyes open, they are responsible for the use and consequences of what they purchase. Laws to be effectual should be enforced, and only by their enforcement can we judge of their merits or demerits. If the law of Congress above referred to is just and judicious, a commission should be established in this State, as in many others, to see to its fullest enforcement, otherwise it will become, as is too frequently the case with other salutary laws, a dead letter.

CREAMERIES.

The establishing of co-operative creameries in our State has made commendable progress of late. When placed in the hands of competent and honest men, they have proved satisfactory to patrons, and have done much to elevate the dairy interest. There ought to be many more established, especially in towns remote from a home market. It is far better to turn over the business to one skilled in making and marketing than to continue the old methods so unskillful in both these requirements.

In conclusion let me urge upon you, as the representative dairymen of our State, the importance of taking such action at this session as shall enlist, if possible, the co-operation of more interest in this important industry. Is it not possible to hold special meetings in different sections of the State? Can we not invoke state aid to a limited degree, so as to enable us to circulate printed essays upon topics of vital use in the production of butter, cheese, and milk? The main bulk of legislation is directed toward the development of resources of the State. Legislation should see to it, if its aid is to be invoked in any direction, that agriculture does not falter. The industry our organization seeks to elevate must be made the leading one or it will certainly falter.

Treasurer Charles N. Clough, of Canterbury, reported a small balance of in the treasury.

A committee of three was appointed to nominate a board of officers and trustees for the ensuing year. The president appointed on this committee George S. Philbrick, of Tilton, Joseph Barnard, of Hopkinton, and S. C. Pattee, of Warner, who reported as follows :

President, J. M. Connor, of Hopkinton ; vice-presidents, C. H. Waterhouse, of Barrington, W. F. Daniell, of Franklin ; secretary, James O. Adams, of Boscawen ; treasurer, Charles N. Clough, of Canterbury ; trustees, George B. Williams, of Walpole, C. H. Waterhouse, of Barrington, P. M. Rossiter, of Claremont, D. H. Goodell, of Antrim, J. T. Burns, of Milford, J. L. Gerrish, of Webster, Sam. Hodgson, of Meredith, Alonzo Towle, of Freedom, John E. Carr, of North Haverhill, and L. T. Hazen, of Whitefield.

Afternoon Session.

George H. Whitcher, superintendent of the college farm, read a paper on milk, which was a scientific production, and was followed with an interesting discussion.

Mr. F. F. Fisk, of Webster, presented the following paper on "Dairy Feeding" :

DAIRY FEEDING.

Within the memory of most of us the cow was an important agent in the dairy business. It was a living being, and required something to build up waste that is constant with all living beings. As the cow was endowed with animal life, it required vegetable life to sustain it. All plants contain materials for making muscle, bone, and cartilage, and to make heat and support respiration. All plants do not contain the various elements of food in the same proportion, nor are all animals alike in their requirements for the various elements of nutrition. Watching the cow, as she feeds at will, we find her cropping the blades of growing grass. Instinct is the best guide, so we feel assured that growing grass is the best food for the dairy cow. But the growing grass is a living being, and subject to the laws of change

common to all living beings. It must be fed. Everything necessary to feed the grass is in the earth and air.

With no lack of any one of the many things earth and air furnish to the growing grass, there would be no growth without sunlight to digest the crude sap which conveyed from the earth the various elements of nutrition for the grass. While the sun shone upon the grass plant food was assimilated, and every hour the growing grass was richer in that which made it valuable as food for the dairy cow.

The sun only works from sunrise to sunset. In the night no sap is changed to plant food, but by ordinary chemical forces some of the sun's work is demolished, and the grass is not as rich in the morning as at night. Do the cows notice the difference in the quality of the grass that they are reluctant to feed in early morning? Should the day be cloudy and sunless, the grass will constantly grow poorer; its value as food for the dairy cow grows less, which is manifest in the diminished flow of milk. Hay cut immediately after a period of cloudy weather is of less value as food for dairy stock than the same grass would have been if it had been cut just before the cloudy period. I said growing grass was the best food for the cow. It would seem to be sunlight.

During the long days of June, with earth and air full of plant food, more sap is elaborated than is required to build up the fabric of the plant. The grass contains many vaults for the reception of any surplus the plant would deposit. As the deposits increase so does the value of the grass for food for the dairy cow. The proof is found in the brimming pails of milk, and rolls of golden butter.

All about the grass the buttercups and daisies flaunt their gay blossoms. The clover wastes its fragrance upon the air. The grass, finding its vaults well filled with everything life needs and more than it can use in building up its fabric, resolves to show its taste for decoration and no longer be the only undecorated plant in the field. It accordingly draws from its hoarded wealth, and spends it in a myriad of tiny blossoms. As modest as is the display it draws heavily upon its stores. The proof is shown in the undiminished flow of milk and yield of butter.

The grass becoming alarmed at the rapid waste of its stores, and fearing bankruptcy and disgrace in the eyes of its companions, gathers its remaining stores, secures them in a grip-sack, and departs. When the cow seeks the grass again she finds it looking pale and troubled, as though some great calamity had befallen it. The first bite reveals the truth. Disgusted that the grass has robbed her of her food she crops the ragweed and golden rod, or any weed or bush, occasionally returning to the grass to make sure she was not deceived.

The cow has always been a great trouble in the dairy, and now she shows her perverseness by making milk and butter from anything she can get to eat. True, there is milk and butter. Though the quantity is much less, there is a worse trouble. It is no longer golden, like the June product, but of any conceivable shade between that and white. The cow pasture refuses to do anything to make it better. Here is trouble indeed. The June butter was sold, and the money spent. The customers refuse this butter, for it is light-colored and lacks flavor. Just now that philanthropist, the chemist, comes to our rescue, and puts into our hands a little bottle; a few drops from it will turn the whitest butter to a perfect golden hue. How we thank him from our hearts for the discovery! Let the cow persist in her willfulness, and make butter from anything she can find to eat, a drop from the bottle and the color is all right. With the color our customers recognize the flavor so much desired. We no longer need the growing grass of June. Straw, bog hay, dead cornstalks, are just as good as long as the contents of the bottle are not exhausted.

The cow was at the bottom of more trouble. The population of our country was rapidly increasing. Europe was sending thousands who did not know the taste of butter. We were anxious they should learn to enjoy the luxury; but the cow did not care if they died eating dry bread. We tried every means to induce the cow to increase her yield of butter that all might be supplied. We offered an unlimited amount of corn meal, pea meal, cottonseed meal, everything tempting if she would just make the desired amount of butter. That it was the cow's fault was certain, for once in awhile, just to show what she could do,

she would make from twenty-five to forty pounds and more in one week. I say it was the cow's fault, for, after showing plainly what she could do, she would die before she would make butter for people who could not recognize its taste. We were in trouble again. We had boasted that we could make bread for the world, and butter it besides. Our friend, that philanthropic chemist, comes to our rescue again, and now in spite of the cow every man can lubricate his bread. Grass may be the best food for a dairy cow, but whoever tries to manage a cow dairy will find the cow will give him much trouble—the result of improper feeding.

If grass is the best food for the dairy cow, before we neglect grass for an inferior food we should learn to make as much food as possible, and then learn how to secure it when it contains the greatest food value with the least possible loss. If grass was grown as well as it might be, and properly cured and housed, no artificial coloring would be needed to make butter pleasing to the eye, and of far better quality than white butter, colored.

So closely related are the food of the cow and butter that one cannot be discussed without the other. Grass may not yield so much bulk of food per acre, but it will yield a butter that for quality cannot be exceeded by any of the various substitutes for grass. Consumers and dealers generally think all winter butter must be colored to be pleasing to the eye. Teach the consumers that the best of butter can be made in winter season and without coloring, and the few dairymen who will furnish that kind of butter will again find their goods standing higher than creamery butter that is colored. Then the dairyman who is so indifferent to his own interests as to keep his cows on dead food, and who must color his butter, will take his place in the ranks of the “oleo” men, and brand his goods “imitation.”

This subject was afterwards discussed in both its practical and scientific bearings by Hon. Joseph B. Walker, of Concord, O. M. Tinkham, president of the Vermont Dairymen's Association, Messrs. Philbrick, Witcher, and others.

Mr. L. T. Hazen, of Whitefield, read the following paper on “Creameries” :

CREAMERIES.

Mr. President, Ladies and Gentlemen :

You have doubtless seen by the posters that Messrs. Daniell and Waterhouse, and your humble servant, were to speak upon the subject of creameries. We read in the good Book of a wedding feast where the master of the house was credited with saving the best wine till the last. This custom has been handed down from generation to generation, and the managers of this association are following that example by presenting my paper first, leaving Messrs. Daniell and Waterhouse as the pure wine till the last, using what I shall say as a preface to the words of eloquence and wisdom that will soon follow. An introduction to a book gives in its preface an outline of its contents. At the dinner table the soup comes first, not so much for its intrinsic food value as an appetizer for the richer foods that are to follow. This is my position to-day. I am to furnish the poor wine and soup to create an appetite for the more solid matter that will be presented. A co-operative creamery was first organized in Rome, N. Y., by Jesse Williams, in 1851. Its origin is considered accidental by many, but I say it was providential. The circumstances under which it was organized were as follows: It was found that Mr. Williams's butter sold for a much higher price than that of his son living near, and to aid him Mr. Williams worked up his milk with his own, the expense to be shared *pro rata*, according to pounds of milk. This proved so advantageous to the son that other neighbors urged and finally persuaded him to take their milk in the same way. Mr. Williams continued to increase until finally he was working the milk of all the farmers living near him. Thus his idea of collecting the milk of several herds so that the best skill could be obtained and applied to the manufacture of the butter has been handed down and enlarged upon until creameries extend from the Atlantic to the Pacific. With such men as Professors Arnold and Alvord, R. P. McGuinney, of Illinois, Sherman, of Iowa, Daniell and Waterhouse, of New Hampshire, and many others, devoting their best talent to its study, it is not strange that great improvements are being made in the development of this popular method of handling milk.

The vast wheat fields of the West have been cropped with wheat and corn year after year till the more energetic farmers realized that something must be done to stop the continued impoverishment of their farms or they would soon become bankrupt. With true western zeal we find such men as R. P. McGuinney, Mr. McKinstrey, and others, having heard of the success of the Williams enterprise, interesting themselves in it, and pushing it ahead until the name of "Elgin" is a familiar word not only in the households of this land but of all lands. Others took up the cry, "On with the creamery," until they were established in all parts of Wisconsin. Through the efforts of Sherman and others they were established in Iowa, and later in Minnesota. Kansas and Nebraska followed, and finally the interest rebounded into our own New England and the creamery system developed through the zeal of our enterprising men whose names are familiar to you all. I will not enumerate the creameries of New England until we have looked over our own State and considered the vast benefits they have been to us. We will consider for a moment some of the benefits of this method.

First, the improvement by changing the butter made in the several farmhouses, good, bad, and indifferent, to a uniform quality, in most instances making an improvement, and where the quality was not improved the wives and daughters were relieved from a vast amount of burden, care, and hard work.

Of the different systems in use there is a diversity of opinion in regard to the best. We will first briefly consider the whole-milk system, which is carrying the milk to the creamery, where it is run through the separator, set by the Cooley system, or by deep open setting. I will not enter into a discussion on the merits of these different systems, but I think when patrons live sufficiently near the creamery to carry the whole milk without much expense it is the most profitable. This places the entire business under the control of the butter-maker, whose reputation is at stake and who will take more pains with the milk than some farmers will at home. Whichever system is used a better quality of butter will be obtained than by the cream-gathering system. The two most popular methods are the whole milk and separator process at the factory, and the cream-gathering system where the cream has been raised by the Cooley process. It is claimed for

the separator that from ten to fifteen per cent more butter can be made than by any other process, and that the butter is equally as good. It is claimed by some that the quality of the butter made in this way is not as good, and this remains to be determined by future tests and trials. The system by which the cream is gathered from Cooley creameries at the homes of the patrons, and the skim-milk left on the farm, would be the best system if the same high quality of butter could be obtained. This would be possible if all patrons would use the best of care with the cans and temperature, but I know by experience that they will not, therefore I advise the whole-milk system where patrons live sufficiently near to make it practicable, and in all cases I would advise having the skim-milk returned to the farm. In this way only about three per cent of the food consumed by the cows will be taken from the farm.

Another benefit derived from the creamery system is its effect upon the patrons as an educator ; with no disparagement to our agricultural colleges, for I believe in, and am friendly disposed towards them, and I believe if properly patronized they would be the means of great good to our State, at the same time I believe co-operative creameries are doing more good than some of our agricultural colleges. For example, the farmers of a town may be keeping five, ten, or twenty cows each. One will get more butter or a better price with the same number of cows. It is usually conceded that he is feeding well or his wife is an extra butter-maker. Let those same farmers carry their milk to the creamery and they will find they are not getting equal cash returns and will soon commence to investigate. They will commence to ask, "How many cows have you?" And "How is it that you get so much more from the same number of cows than I do?" "How do you feed?" "What kind of cows have you got?" Such questions are being asked daily among the patrons of my creamery, resulting in weeding out the poorer cows and keeping the best ones, a better system of care and feed and a better general system of farming being adopted. They are led to take and read more agricultural papers, note the experiences of others, and, in a measure, pattern after them, resulting in better farmers, better husbands, better fathers, and better citizens.

Another source of improvement is for the managers of cream-

eries to point out the defects in the cream or milk, explain the cause and the remedy; and in ninety-nine cases in a hundred they will try to remedy the defects. In making the effort they will soon become interested in watching for and guarding against them.

In these various ways the creamery can be made, and in many cases already is, a dairy school, yes, more, a general educator, elevating its patrons in no small degree. The influence is extended through the neighborhood, the town, and to adjoining towns. The town in which the creamery is located will be referred to as a prosperous town, and, to illustrate, I will refer to my own experience. I have tried to carry on my farming operations by improved systems and have received letters from Virginia, Georgia, Illinois, Wisconsin, and Iowa, asking questions in regard to my methods. I think the preface to the book to be issued by the honorable gentlemen, who are to follow with the sound sense, is enough, to give you an idea of what they are to say. I will bid you good night and give the floor to those more worthy to instruct you.

The subject was discussed by John G. Tallant, of East Concord, and others.

Dr. I. A. Watson, secretary of the State Board of Health, read the following paper on "Milk from a Sanitary Standpoint":

MILK FROM A SANITARY STANDPOINT.

The question of providing the people with a pure milk supply is one that is to-day receiving much attention from sanitarians and other scientific investigators. The subject has extended far beyond the consideration of fraudulently placing a watered or otherwise inferior milk upon the market by a few unscrupulous venders, and has become a scientific question with which the interests of the producer are inseparably connected.

The dairyman who would excel in quantity and quality of milk produced must apply, at least, all that science reveals regarding the subject, even if he does not understand or study the facts that lead to the revelation. It is not to be expected that all dairymen will become scientists, but they can, if they will, ac-

cept the results of investigations and apply them with great advantage.

The researches made within a few years into the cause and nature of certain diseases, demonstrating, as it has, very much that before was unknown in the processes of organic life, have in no other department of food production contributed so much of importance as upon the subject of milk supply. The absolute demonstration of the germ theory of disease, and the comprehensive knowledge of various other micro-organisms that take part in or induce many of the phenomena that take place in the organic changes and operations incident to animal and vegetable life, have shown us that no other product is so susceptible to infection and contamination as milk.

The word "contamination" is used in this connection as implying any alteration induced by organic changes or from extraneous causes. Milk, as every producer knows, possesses remarkable absorbent qualities, while, owing to its nutritive properties, it is especially adapted to the development of almost every kind of micro-organism that may accidentally be brought in contact with it. Indeed, it may be said to be a natural media for certain organisms low in the scale of life, and so readily is it acted upon that its original character is always lost in a few hours, unless protected by a low temperature or some other artificial means.

The influences that affect the quality of milk may be stated in a general way as follows :

1. Breed and age.
2. Season and its attendant changes.
3. Feed and water supply.
4. Ventilation and general care of stable.
5. Drainage and other sanitary supervision.

Without a proper consideration of these items a perfectly healthful milk is not assured. It is true that chemistry will show whether milk from a given dairy contains the thirteen parts per hundred of solids as required by law, but it is wholly inadequate to determine if it contains an infectious or noxious principle that may have been introduced in a variety of ways without affecting the legal standard.

The law simply guarantees to the public that the milk which they purchase shall contain a certain amount of solids. It does not specify any other quality than that demonstrated by chemical examination.

Every producer of milk knows that there are certain articles of feed and other conditions which may affect the taste, purity, and keeping qualities of the milk which an analysis will not show. An inspection made in 1884, in Massachusetts, showed that a herd of cows kept in the following conditions produced milk of the legal standard :

1. Herd of cattle largely selected from condemned animals at extremely low prices.
2. Overcrowding.
3. Filthy stables and filthy surroundings.
4. An extremely impoverished diet, malt (brewers' grains and sprouts), tomato skins, small quantities of salt hay, and bale hay and meal.
5. Filthy water pumped from a well driven through a pool of liquid manure under the stable.

Notwithstanding, the milk produced by this herd fulfilled all the requirements of the law. No one who has any knowledge of the production of milk will for a moment believe that the milk obtained from this herd was of such quality as would be produced by a herd of well-kept cattle. Milk produced under such conditions would be utterly unfit for small children dependent upon it for sustenance, even if it were innoxious to persons in adult life.

The question of breed, age, season, and food, in their relation to the production of milk, has been too often and too extensively considered to be here discussed, so far as quantity and quality with reference to the legal standard are concerned. In regard to feed, however, water supply, ventilation, drainage, and sanitary supervision, there is much which undoubtedly has not been fully, if at all, considered by the dairyman.

Prof. Girard, director of the Paris Municipal Laboratory, in a paper upon the "Feed of Milch Cows," published in the "*Revue d'Hygiène*," says in a summary of his conclusions :

- "1. The udder cannot be considered as a filter so perfect

in its nature that water charged with poisonous ingredients becomes harmless and healthful in its passage through it.

“2. Every substance which contains a noxious element, germ, microbe, or poison, capable of mingling with the blood, should be absolutely removed from the feed ; since the milk is derived directly from the blood, everything which passes into the latter may also reappear in the milk.”

Good ventilation is as essential to the welfare of animals as of man. So important is this matter regarded in some localities that the amount of air-space per cow has been fixed by regulation. The Metropolitan Board of Works, of London, in regulations for cow-sheds, fixed the air-space at 800 cubic feet per cow. The Dairymen's Association petitioned to have the amount reduced to 600 cubic feet, chiefly on account of the low temperature which followed the carrying out of the regulations, by reason of increased space per cow.

Dr. Parkes, of England, who is recognized as one of the ablest sanitary authorities in the world, states that each cow in every milk-stable should have at least 1,000 cubic feet of air-space. He further says that in cow-houses disease and death are in direct proportion to foul and pure air.

In the city of Brooklyn, N. Y., regulations require 1,000 cubic feet of air-space to each cow. This subject and that of general cleanliness in and about the stables are under municipal regulation and inspection in many places.

The health commissioner of Milwaukee in 1880 caused a thorough inspection of the stables in his jurisdiction to be made, and the result showed that in a very large majority of cases no attention whatever was paid to sanitary requirements. In many stables the condition was absolutely filthy ; a large number were wholly unventilated ; in others there was great overcrowding, and in some very little light. In many stables the atmosphere was loaded with putrescent vapors ; liquids ran through the floor, saturating the earth beneath, which of course produced a putrefactive fermentation which constantly generated poisonous gases. In other places the general uncleanness of utensils used in carrying on the milk business was noticeable. While conditions varying from those classed as “unexceptionably good” to “abso-

lutely repulsive" were described in the report, the latter largely predominated in numbers. Out of 1,871 only 713 were classed as "unexceptionably good," while the remaining 1,158 were classified in varying degrees down to "absolutely repulsive."

These facts are given for the purpose of showing the sanitary neglect which exists even with the knowledge that is accessible upon the subject. It is quite possible that the conditions just described do not apply to the dairy stables of New Hampshire; but it is true that they do exist in too many instances among the smaller producers of milk.

Dr. Abbott, secretary of the State Board of Health of Massachusetts, who has given much attention to the subject, says that a radical change is needed in a great number of cow-stables throughout the State, not only as to feed, but in the matter of ventilation, of lighting, of overcrowding and air-space, cleanliness, water supply, and drainage.

So well is the fact known that certain articles of feed affect the milk that most producers are now careful in its selection; but many of them, and perhaps a majority, entirely ignore the subject of water supply. Dairymen who are careful to exclude decaying vegetable and other kinds of tainted feed allow their cows to drink water that is loaded with organic impurities. In some instances the water supply is from a well situated in a convenient locality, frequently in the barnyard or under the barn, where it must, from the very nature of its surroundings, be badly polluted. It is not improbable that from this cause alone an inferior milk and butter are often produced. To what degree the impurities taken into the circulation from polluted water are eliminated through the milk, is a question worthy of consideration.

Investigation shows that polluted water is a most prolific source of disease in the human family, especially of typhoid fever, and it is reasonable to suppose that water unsuitable for domestic purposes is also unfit for consumption by animals. The recent examination of a large number of wells in different sections of the State confirms the belief that a well of pure water is the exception, and that a majority of the wells are polluted with some form of organic matter. Every one knows that a well is a

hole in the ground, constructed in a certain manner, and deep enough to reach water; but they have not considered the fact that it drains a certain area of soil represented by an inverted cone, the apex of which is the bottom of the well and the base the surface of the ground above. The distance across the base is usually regarded as twice the depth of the well, although under certain conditions of the soil it may be much greater. So greatly does this rule vary that it is an unsafe one to follow. It is evident, therefore, that waste products deposited upon the soil drained by the well will, in the course of time, leach through the earth and contaminate the water. The process goes on so slowly that the organic matter that reaches the well often loses both taste and smell and is not recognized. In several instances in this State eighty grains of organic matter to the gallon have been found, while the normal amount should not exceed four grains; and yet the contamination could not be recognized by sight, taste, or smell. The wells at hundreds of our country homes are located in the most favorable positions to become polluted. Around them in close proximity are sink-drains, family vaults, hog-pens, stables, barnyards, and refuse matters of various kinds. The products of the dangerous environments gradually filter through the soil and load the water with tasteless, and odorless, and sightless poisons.

In answer to some questions submitted to the physicians of New Hampshire last year relative to typhoid fever, out of one hundred and twenty-nine who had treated the disease fifty-three, or forty per cent, reported water pollution to be the cause. Water is a great solvent of organic, and, to a certain extent, inorganic matters. The falling rain takes up impurities into the air and imbibes to a great degree the soluble products that it comes in contact with upon the surface and in the soil.

Upon the soil in the immediate vicinity of dwellings not connected with a sewer a large amount of waste matter is necessarily deposited, aggregating many tons annually at a single dwelling. A great part of this product is fluid, chiefly sink-water, and what does not evaporate or run off is received into the soil. For a short time, on new and clean lands, such products are taken up and oxidized or otherwise changed; but by and by the soil be-

comes supersaturated and loaded with impurities. Now a well situated in the immediate vicinity of such conditions, as hundreds in this and other States are, must from the very nature of things become contaminated. The degree may be little or much according to circumstances.

The falling rain and water from melting snow leach through the filth-saturated soil and reach the well. The top of the well may be covered with a painted plank platform into which is set a pump of the most approved pattern ; the ground immediately surrounding it may be of clean gravel or beautifully grassed, so that the external appearance is pleasing to the eye and suggestive of unscrupulous cleanliness ; but beneath this fair exterior little channels and water-courses may be carrying to the well, slowly but surely, the bitter seeds of sickness and death. Wells of this character become cesspools, out of which we continue to drink daily because we do not smell, taste, or see the infectious principle that is held in solution in the water.

It is not only self-evident to any one who has carefully considered the subject of polluted water, but is also proven by experience, that water from such sources should not be used for supplying the dairy stable, or in washing or cleansing utensils in which milk is kept. The custom which is in vogue among some producers, of washing butter in water, should be looked upon with suspicion whenever the water supply is from a well that may possibly be polluted. Milk has oftentimes been the medium through which diseases have been transmitted, especially typhoid fever, diphtheria, and scarlet fever. In cases of typhoid fever transmitted by milk, the intervention of infected water has always been proven. In diphtheria and scarlet fever the germs of the diseases seem to have been absorbed by the milk directly from an infected atmosphere. The epidemic of typhoid fever at St. Pancras, England, a few years ago, was proven to have been caused by infected milk. The investigation was most thorough and the facts obtained conclusive. The vault into which were thrown the dejections of a typhoid fever patient was not over twenty feet from the well. The milk cans, pails, and all the dairy utensils were washed in water from this well. There were 431 cases in 276 houses ; all but 63 of the 431 cases received the

infected milk, and it was probable that all received the disease from the same source.

At Port Jarvis, N. Y., an outbreak of typhoid fever was traced to a dairy farm where all the utensils of the dairy were washed with water contaminated by a cesspool. In nearly every family using the milk there were one or more cases of the fever. The physicians believed that the germ of the disease was contained in the water used to wash the cans, pails, etc. A few years ago at Aberdeen, Scotland, typhoid fever broke out simultaneously in nine families. Investigation showed that these nine families obtained their milk from one small dealer at whose place the disease existed.

In 1876 an epidemic of typhoid fever occurred at Eagley, England, which was traced directly to the milk supply. Fifty-seven families were supplied by one dealer, and out of this number fifty-five contracted typhoid fever. It was shown that the milk cans were washed in water poisoned by the dejections of a typhoid fever patient. However, it was denied that the milk was watered. In a report of the epidemic the health officer states that "not one household to which the milk was traced did I find entirely free from the disease."

In 1880 an epidemic of thirty-two cases of typhoid fever occurred from infected milk in Southport, England. The milk cans were washed daily with water from a well that was infected with typhoid fever germs. The cause of the epidemic was discovered and its extension curtailed by stopping the sale of the milk.

In a recent number of the "Sanitary Engineer," the remark is made that there is little doubt that we have in this country, and especially in our large cities, typhoid fever from milk contamination; but it has not been well established. The reason for this is that our investigations are not so thorough as the English, and when we fail to find the disease in infected water our researches cease.

It is believed that diphtheria and scarlet fever have been repeatedly conveyed to individuals through infected milk, and that the germ of the disease was absorbed by the milk directly from the atmosphere. Several instances are on record. An epidemic

of scarlet fever in London, a few years ago, was traced directly to the milk supply. The disease was confined to the exact district of one milkman, and so marked were the lines that the inhabitants upon one side of the street, who were supplied from another source, did not have the disease, while upon the opposite side every house was infected.

More care is needed in the storage of milk than is generally thought necessary, and this, especially, where there is illness of any kind in the family of the dairyman. In such instances the emanations to which the milk is exposed are of a diseased and dangerous character, and subjected to such influences it is impossible for the milk to retain its normal purity. There is an abundance of evidence on record to show that disease germs have been in this way absorbed by the milk and transmitted to persons.

Dr. McDougal, in an address before the Philosophic Society of Glasgow, on the subject of milk as a vehicle of infection, said that it is "a congenial soil for the preservation, and probably even the multiplication, of specific infection."

Dr. Sternberg, the distinguished American biologist, says that milk would be a suitable culture fluid for the experimental reproduction of disease germs in the laboratory, if it were not so readily infected by other germs which float in the atmosphere, thus showing how readily it is contaminated by various organisms.

Dr. Vatcher, a celebrated English authority, in writing upon the transmission of disease by milk, states that it may be transmitted as follows :

1. It may be derived from a cow suffering from a specific epizootic disease.
2. It may be derived from a tuberculous cow.
3. It may be drawn from an inflamed udder.
4. It may have undergone chemical or fermentative changes.
5. It may have become infected with the contagium of a human disease.

Under the classification of epizootic diseases likely to occur in cattle, he mentions pleuro-pneumonia, splenic fever, and foot and mouth disease. It is quite likely that the danger of milk

becoming infected by reason of the acute diseases just mentioned is not so great as might be expected, from the fact that the milk secretion is usually rapidly arrested after an attack.

Whether or not pleuro-pneumonia germs are secreted by the milk is not certain, so far as my information goes ; but since the germs of this disease exist in the blood in great numbers, it is not unreasonable to suppose that some of them might be secreted in the milk.

Splenic fever is communicable to man and is nearly always fatal if the infection is internal ; external infection by a scratch or similar introduction of the virus produces malignant pustule which is often fatal. The milk and butter of animals affected with this disease possess virulent properties, according to Heusinger and other observers.*

The foot and mouth disease always exercises a marked influence upon the character of milk. It contains not only the germ organisms of the disease but frequently we have pus and even blood. From such milk the disease has often been communicated to the human subject. Its communicability was discovered by Sagar as long ago as 1764, in Moravia, who observed the disease in human beings who had drank the milk of cows suffering from the foot and mouth disease. Similar observations were made by Brosche in 1820, in the instance of some young girls who had contracted the disease from milk. Still later, in 1827, in Bohemia, where the disease was prevailing extensively among the cattle, young people were attacked with an inflammatory lung fever accompanied by an aphthous eruption in the mouth or an exanthema resembling that of small-pox, and also by abscesses and ulcers upon the lower extremities. Schneider reported entire families who were made ill by the use of butter and cheese made from the milk of cows affected with this disease. †

A few years ago the disease appeared in a dairy at Brighton, Mass. The milk of the infected cow, together with that of thirteen others, was sold to the consumers during a period of two or three days, when the disease was discovered by the proprietor, who immediately and very justly notified his patrons of the trouble. In one of the families supplied the disease broke out in the

* Ziemssen, Vol. III. p. 408.

† l. c. p. 521.

course of a few days in three individuals, all adults. The symptoms consisted of "loss of appetite, nausea, slight acceleration of pulse, swelling of tonsils and sub-maxillary glands, the appearance of a few vesicles upon the lips and tongue, and a singular cutaneous eruption on the lower extremities, consisting of clusters of papules, vesicles, pustules, and ulcers of different sizes."* Another case was found in a woman in another locality and traceable to the same cause. There is upon record a great abundance of evidence showing the facility with which this disease is communicated through the media of infected milk, butter, and cheese.

Tuberculosis, or consumption, is a disease not uncommon among cows. The experiments of Klebs, Gerlach, Orth, and several other equally able investigators† in feeding tuberculous milk to animals certainly go to prove that it may be communicated to them, and it is believed that it has often been communicated to young children in the same manner. Prof. D. E. Salmon, D. V. S., of the Bureau of Animal Industries in this country, believes that tuberculous milk is an exceedingly prolific source of consumption in the human family. From the direct experiments of tuberculous milk made upon the lower animals, we have the strongest evidence that infection of the human subject, especially children, might readily follow the use of such milk. The identity of tuberculosis in animals to consumption in man has been fully established. The germ, or bacillus, is morphologically the same and there is no distinction in the pathological lesions. It is also positively asserted that there are clinical observations proving the transmission of tuberculosis from animals to man through the use of tuberculous milk. In the report of the Bureau of Animal Industries for 1884 it is stated that certain herds were supplying New York city with milk containing twenty, thirty, and even fifty per cent of animals affected with the disease. In some districts of New York can be shown large herds with 90 per cent the subjects of tuberculosis, and in this connection it is asserted that 29 per cent of the adult males dying in New York city are tuberculous. The same report says:

* Report Massachusetts State Board of Health, 1871.

† Public Health, Vol. VIII. p. 169.

“Turning to milk, it cannot be denied that boiling would give the required guarantee of safety ; but in the *milk-cure* establishments and where this liquid is produced for infants, it is sought fresh and used without boiling, and yet these places seek for the heaviest milkers, and often secure tuberculous cows. For these, and indeed for all dairies, there should be a state control of the milch animals and their products. In the present state of public opinion it may be possible to apply measures that will be really effective in preventing the sale and use of tuberculous meat and milk, yet, where already applied, the preventive measures have proved so beneficial that we must advocate their maintenance and extension.”

In this connection it should be impressed upon the minds of the people that tuberculosis is the most fatal malady known to mankind. The number of deaths occurring in New Hampshire annually from this disease, directly and indirectly, exceeds one thousand ; between eight hundred and nine hundred are directly charged to it, being twice as many as from any other disease.

In incurable disease, like cancer for instance, it is not unreasonable to suppose that the milk must be diseased. Cancer is very frequently found in milch cows, and cases are on record where milk has been sold from animals suffering with the disease in an advanced stage. A case was discovered in one of the towns in this State in which the cow was suffering from two large cancers, one on each side of the face. The animal had been kept for four years in a dark and filthy cellar out of sight, the milk meanwhile being sold daily to customers who supposed they were getting an excellent quality. Whether cancer cells are eliminated in the milk is not known, to my knowledge, but it is certain that normal milk cannot be produced from a diseased cow, and a man who would sell milk under these circumstances deserves to be compelled to use the product as his sole diet.

Milk from a “gargety” cow should be rigidly excluded from domestic use, as it contains bloody serum, pus, and other fetid animal products which at once condemn it. The condition termed “gargety” is simply an inflammation of the udder and is not a specific disease, yet every milkman should be careful to exclude such milk, for it has been known to produce indigestion and even toxic effects in the individual using it.

Very much might be added to that already cited to show how readily milk becomes infected under a great variety of circumstances and causes, but this would seem to be sufficient to illustrate the points in view. A knowledge of the various evils suggests, in a great measure, the methods necessary to avoid them.

It is necessary that no detail should be overlooked in the care of milk from a sanitary standpoint. The milk should be drawn in as cleanly a way as possible, and even then, except in perfectly sound animals, there is danger that the milk may contain some germs of disease. From the healthy cow there is received into the milk-pail, under the best conditions, some foreign matters like hair, epithelium cells, and other animal debris.

It is perhaps unnecessary to remark that milk should be immediately strained through a very fine sieve or cloth strainer and removed from the stable to a place not exposed to odors or an impure atmosphere. The great avidity with which milk absorbs any taint renders this a matter of the greatest importance, as well as that all vessels into which it is put should be *absolutely* clean. In some parts of Switzerland, it is said, milk is strained with excellent results through sprigs of well-washed fir-tops placed in a funnel, and the milk filters through as fast as milked from the cow, thus arresting at once hair, skin, clots, epithelium, and other matters.

It is not to be presumed for a moment that the unsanitary conditions mentioned apply to a majority of the dairy farms in this or any other State ; but it is true that a total neglect of good sanitary conditions exists to such an extent as to give force to all that has been said, and the odium which a single bad dairy stable casts upon the entire industry is not to be overcome by the fact that most dairies are suitably cared for.

The remedy for these defects must be applied largely through suitable laws and their impartial enforcement, in instances where a knowledge of the subject is not sufficient to insure proper care in the production and sale of milk. Pure milk can be assured in two ways : First, through the conscientious endeavors of the dairyman, through proper feed, care, and sanitary management ; second, by compulsory laws which shall secure these conditions

through the executive work of a qualified inspector whose duty it shall be to examine the dairy stables and all conditions connected therewith pertaining to the subject of milk production.

SECOND DAY.

Mr. O. M. Tinkham, president of the Vermont Dairymen's Association, was the first speaker.

Among the good things said, we select the following: While there may be those farmers who desire a general-purpose cow, no dairyman would select anything but a *special* cow — a butter machine. He recommended intelligent and liberal feeding. He would recommend thoroughbred Jerseys, partly on account of the profit derived contingently from stock sales. Would avoid sour meal and excessive feeding of ensilage. Dairymen could transgress all rules with impunity, however, provided excessive cleanliness was observed. With a good Jersey cow, the cream line would be apparent on the milk in an hour after setting, while it was much longer rising on the milk of other breeds having small butter globules. Good butter can be made by any method of setting. Farmers must settle the question as to creamery or private dairying by figuring on cost of help, and ability to manufacture their products so as to net more than returns from the creamery.

The remainder of the forenoon was spent in discussing the methods of dairymen present, regarding working and salting butter. The majority washed in either water, brine, or both. "Brand your goods and make to suit your customers," was Mr. Tinkham's remark, which he aptly illustrated.

Afternoon Session.

Mr. George S. Philbrick, of Tilton, gave the leading paper on "Feeding."

Mr. Rollins, of Bedford, read a paper on "Soiling," giving the rotation followed on his farm, which gave green crops for his cows until time to open his silo. In May, rye, followed in order by clover, rowen, oats, early-sown corn, second-crop clover. He sows barley, following early potatoes, which runs until

heavy frosts. He puts the saving in drying, manure, and the comfort of the animals against the care and labor attending the raising and daily harvest of soiling crops, and points that out as the high road to extra production and increased fertility. Secretary Adams said he had followed similar practices, only on a less productive soil. He also raised Hungarian grass and cow peas.

Samples of butter from Short Falls and Island View creameries received commendations from the committee. A few good samples were also shown from private dairies.

Following the report of the committee many good things were said during the general discussion, for which we have not space, and only regret that they do not go on record, and that the large number of dairymen who remained away will go on making butter without the benefit of the knowledge which they might have carried home had they been present.

Evening Session.

Hon. Edward Burnett, of Southborough, Mass., gave a talk on "Our Dairy Interests," and the following report of his address was taken from the "Massachusetts Ploughman":

OUR DAIRY INTERESTS.

Gentlemen and Fellow-Farmers:

I am not here to deliver an address, but simply to talk upon dairy matters as a subject which you know is my specialty. In beginning a talk upon the dairy, I always say that there are three important things which, if fully observed, will surely lead to success. These are, in the first place, the feed; in the next place, the stock; and in the third place, care and skill. Those four words, I think, embrace the whole thing, and all that is necessary to success. In the first place I put feed, because it is really the most important of the three, although without one of the others — care and skill — no man can be successful. In making butter, — and I shall touch more particularly upon making butter, and shall speak from experience and very close observation, — there is no question in my own mind but that feed is more

important than the cattle. You may have the best butter cow in the world, and unless you support her on the right sort of butter feed she will not make good butter. I have studied the matter carefully myself, and I know that unless you have good butter feed for your butter cows you cannot succeed. If I could have only one of the two, butter cows or butter feed, I would take the feed. I would rather take the poorest cows on butter feed — that is, the right sort of feed for butter — than take the best butter cows with poor food.

I think that probably the best illustration of the men that are most successful to-day in making butter, if we gauge that success by the money they get for their butter, are the Darlington of Westchester, Pennsylvania. These men have for years, and their fathers before them, made the greatest study of feed and what it will do. If you visit their farms you will find evidence of this in the fact that they are making an article of butter that brings right straight along at retail a dollar a pound, and at wholesale,—they make 600 pounds a week generally,—in the winter, that butter brings eighty to ninety cents a pound. Those men use nothing but common cows. Of course they have taken great pains to get dairy cows and to buy only good butter cows. Their dairy is simply a large machine, and when a cow is put into it, it is expected that she will be managed for producing butter, and that one product alone is her specialty. I have looked into this matter very carefully, and as to the feed I was surprised to find that they were feeding clover hay, only, with the best Indian meal. They gave ten quarts a day of the best Indian meal to a cow. When they have kept their cows on it for eight, ten, or twelve months, they are in good order. We can understand that. They sell off their timothy hay, most of it, to go to Philadelphia for horse hay, and they buy wherever they can find it the best clover hay, and feed it to their cows. These men are the most successful dairymen in this country for strictly fancy butter. Now, some one may say that I am disposed to favor Jersey cattle, but these men use Guernseys, Jerseys, Holsteins, or any thoroughbreds, but they rely upon the feed to produce these results.

Now, I may say this, for perhaps some of you gentlemen have visited those farmers, I will say that the feed is the main

thing in their treatment. This is not a theoretical thing, but is a statement of facts. That is the rule at the Darlington's', and I think it is acknowledged that there are no better butter-makers in this country to-day.

I have always connected this fact with their feeding of clover. I know myself from my own experience how difficult it is in some years when it is dry, especially during the last few years when we have had drought, to raise good clover. You can raise clover on good, rich land, if it is adapted to its growth, and if it is in good heart. A great many people, for I have talked on this question with many, will say: "Burnett, how can you cure clover? I believe in clover, but I don't know how to cure it, and when my clover grows pretty rank and is packed into my barn I have nothing left but woody and fibrous stalks. The leaves have all been shaken off." I find that the trouble is, in the first place, they cut it and try to dry it just as they would ordinary hay. Now, the most successful men in Westchester, in that famous country for butter, do not cure their clover in that way. I saw them harvesting it when I was there. They cure it by cutting it early, cutting it when it is in full bloom, or just as it is coming into blossom. They cock it into small tumbles, and all they do to it — cutting it in the evening or the afternoon, — is to roll it into these small tumbles in the next forenoon, or in the middle of the day. That clover lies there until it is ready to be put into the barn, being turned over two or three times a day. It only takes two or three days to cure clover that way. If a shower comes up, they put two or three or four of these tumbles together, and the rain does not wet it much. Every one of you know from experience that if hay has stood in the tumble over night it will shed water very much better than if the shower comes up within the first hour. I know that clover is coarser than other hay and will catch the rain better than fine hay, but at the same time you would be astonished to see how little rain will penetrate into three or four of these tumbles that are put up in nice form as they should be.

Well, I shall not touch longer upon butter, for I am here to talk more upon cattle, but I cannot say anything to the farmers upon making butter, or supplying milk to the creameries that

make butter, without speaking of clover hay. I had a long talk this fall at Des Moines, Iowa, at the time of the state convention, with Hon. H. D. Sherman, the dairy commissioner of Iowa, father of all this family of creameries. Sampson, McIntire & Co., in Boston, are probably the largest agents of these Iowa creameries, and own some of them. Mr. Sherman is a man that has brought the product of Iowa up to about the highest price in the market to-day in New York, Boston, Chicago, whereas ten or fifteen years ago it used to bring the lowest price. The dairy butter from Iowa used to bring in Chicago, fifteen or twenty years ago, and in other places in the West, the lowest price; it was put up in seventy-five and one hundred pound barrels and brought about as little money as any butter that was sold in Chicago, and now it is sold in competition with the best butter of any part of the country, and competes with the Elgin. This has been done since H. D. Sherman was appointed dairy commissioner for Iowa.

He agrees with me on the food question. He said that the commissioners found that the people were making a serious mistake, and it was hard to make the farmers realize the need of having better cows, for in order to do that they must have better feed, and he has brought about the change by proving that on clover feed the cows will average better than on any other kind of fodder that could be fed to them. I also appreciate very well the fact that we cannot feed clover all the time. I have never fed clover alone all the time for my stock. You must get some other food to feed them with a part of the time and then you can carry them right along. You want hay or good clean corn fodder. I have used corn fodder daily for my cows and have been much pleased with the result. I also use in feeding my cows the old-fashioned cob-meal, and if you make a good use of clover hay with that cob-meal you will get excellent results. But you want to have the cob-meal ground at least once a week. You do not want to lay in enough to last all winter or a month. If you do, the meal loses its flavor. You can realize the fact, or at least your wives can, who make meal into Johnny-cake. They know that the best Johnny-cake is made from meal freshly ground. That is so of meal used for butter.

All these little things go together and if you observe them all you can get a good price. If any one of these little things are left out, it will not make so good butter. But if they are all observed you will make better butter and get a better price.

I am always a strong advocate in winter of the use of roots. I have not had any experience with ensilage, but I find that men who have used ensilage in moderate quantities do not have any better results than I, and I get good results with roots and can make good butter with them. If I could make to-day a dairy after my own heart and feed my cows just as I wanted to, I don't think I should feed any ensilage. I do not want to say much on the question of feed, but this is an informal talk. I am here to-day as a fellow farmer and I should be delighted if any of you were disposed to ask me any questions. I love this subject and I wish that I could answer any questions that may be asked.

I will leave the subject of feed and come to that of stock. I suppose that you will all say that I am a breeder of Jerseys, and, therefore, that I think there is no cow like the Jersey. But that is where you are mistaken. I recognize this, that there are other thoroughbred animals than the butter cow. But there have been some very curious statements made by the breeders of rival breeds and by Jersey breeders. I believe in the Jersey cow, but I don't believe that it is the only breed in the world. I was very much amused, and rather astonished, at my friend, Gerrit S. Miller, who delivered a paper before the State Board of Agriculture, in Barre, a few weeks ago, in which he made very strong statements. The paper was on Holstein cattle, and he claimed for them everything. He made one statement which I want to correct in public. As I said after I heard this paper, "I know Get. Miller, and have known him for a long time, and want to take occasion to call his attention to this matter when I get a chance." He made mention that, though the Jerseys were raised numerously on the island, they did not send any butter to the London market. He asked: "How much Jersey butter is put into the London market, and how much comes from Holland?" I suppose that nine tenths, yes, ninety-nine out of a hundred, of the farmers that read that statement would naturally say that

they never knew of Jersey butter being sold in London. But Dutch butter and Danish butter is sold by hundreds of thousands of pounds in London every year. Let us see how large is the Island of Jersey. It is five miles wide and twelve miles long, and it contains only thirty square miles. Yet on that island there are about 4,000 cows. On those thirty square miles live 60,000 people. That is, 2,000 people to the square mile. There is no farming country in the world that carries that number of people to the square mile. Just think of it, 2,000 people to one square mile. What do those people do? They are the best farmers, and yet the crudest farmers, in the world, yet their cows cannot support them, but they import \$1,500,000 worth of produce every year. Their great crop is potatoes, to be sure. Those 4,000 cows every summer have to support an influx of from 500 to 1,500 visitors. Those English people from London, Southampton, and Bristol, and from other cities, who come over there, want to live upon milk. They don't make butter enough for the Island of Jersey, and cannot meet their own market. How can they supply London? They cannot do it from that little territory. They do make, I think, at least one half of the supply for the population of the island.

Now see what amount of land we find in Holland. There are 15,000 square miles instead of thirty, and a population of 3,500,000. Look at it, gentlemen. What have we got? About 230 people to the square mile. On the Island of Jersey there were 2,000 people to the square mile. If any one of you has ever been in Holland, he knows what Holland is. It will raise more to the acre than any other land in the world. So it was rather an unjust statement to make about Jersey and the London market. I was very much amused, being a friend of Mr. Miller, and knowing that before he became a breeder of Holstein cattle he quite agreed with me that there was a great difference between cows which are raised for butter only, and those which are raised for other purposes.

When you talk about butter cows, you want simply a cow that will make the most butter from the smallest amount of milk. If any of you have raised a Jersey, or a Holstein, or a Guernsey, you know the average weight of these cows. Now, I want to get

the best average results, and I do not want a comparison of single instances, but with average Holstein milk. I have weighed a great deal, and it takes from 25 to 30 pounds of milk to make a pound of butter. That is the average result from the Holstein. But with the best grade of Jerseys you can get a pound of butter from 15 to 20 pounds of milk. There is a difference, you see, of over 33 per cent in favor of the Jersey.

I think myself that the Jerseys have been bred altogether wrong in the last twenty years. Most of the cattle have been bred simply from solid-colored bulls. Gentlemen, that was a great mistake, and we should turn our breeders' attention to breeding from good butter bulls. These should be from cows that would make from 10 to 14 pounds of butter a week. I would rather have a grade Jersey that would make 20 pounds a week than 30 pounds a week. I believe in good average results, but not in phenomenal results. All of you may want a chance to see what a cow will do, but the farmer wants average merit rather than one or two famous individuals. The breeding of Jersey cattle has been in the hands of a few farmers, but a large number of gentlemen, who are men of wealth and want to enjoy looking at their cattle, visiting their stables, and admiring their beauty, have been the cause of this individual development. I do think that a Jersey cow in her prime is one of the most beautiful animals to look at there is.

I admire, to a certain extent, solid color. But I would rather have a mottled bull from a fourteen-pound-a-week cow than a \$500 bull of solid color from a cow that did not give five pounds of butter a week. We have got to breed that class of Jerseys, and we have got to put a constitution into our cows. We have got to put a good belly on our cows. We have got to give them the capacity to take better feed and digest it, and convert it into butter, and rear their young. Some of our Jerseys, I will admit, and it has often been thrown in my face, are so thin that a puff of wind will blow them away. Take a Jersey cow that has been on my own farm. You will find that she has a good constitution, and her milk will make from 300 to 350 pounds of butter a year. Well, that is what tells the story. My friend, Mr. E. B. Douglas, of Shoreham, Vt., from ten Jersey cows—I think they

are all registered animals — makes a profit, over and above all expenses, of \$72 per cow a year. That tells the story. What did that man do with his butter? He sold it in the New York market. He went to several of the hotels himself and took samples of his butter. He sold it for only four or five cents above the market price. He did not get any fancy price, and yet at that rate he made a profit on his ten Jerseys of \$72 each a year. Obed Whipple, of North Pomfret, and Mr. Wood, of the same town, will tell you of their herds of Jerseys which averaged over 300 pounds a year each. They get a good price for their butter, but not a fancy price. They make from \$50 to \$60 a year on each of their cows in their dairies. That is what tells the story.

We must take the different breeds on their merits, and you will not find, on the whole, a milking breed of more merit than the Jerseys. Some Jerseys have been carefully bred for butter in this country. You will find at my farm that a great deal of credit is due to my father, who began the breeding of Jerseys thirty years ago. There are cows that will weigh 1,200 pounds. I have caused every cow in my stables to stand on the scales. I don't think I have a pure Jersey cow on my farm that will not weigh 950 pounds. I have almost forty of them, and the highest will weigh 1,215 pounds, while the lowest is in the neighborhood of 950, and that is a good-sized dairy cow.

Now, gentlemen, while we are on the breed of cows, I want to say one word about the strong claims that rival breeds make for butter. I will simply call your attention to the fact that at the beginning of the present century, the Short-horn cow in England was called the best dairy cow there. And what is she to-day? The best English Short-horn breeders have devoted their lifetime to perfecting this breed and to bringing them up to the point where they will make the most fat with the least waste and for the smallest amount of money, and we have to-day an animal that is the most perfect machine in the world, which will produce beef with the smallest amount of waste. That is the typical thoroughbred Short-horn. But what do we find that in the last century they have done? They have simply turned the order of nature upside down. Among these experienced farmers

to-day we find cows that will not give milk enough to rear their own young. Some breeders are obliged to buy wet nurses in order to get milk enough to bring up their calves. Some of them don't pretend to keep their calves on the cows more than a few weeks, just long enough to check any inflammation of the udder.

Look at the different characteristics of the beef and dairy breeds. Why, the difference is just as much as the difference between a draft horse and a thoroughbred running horse. I think that Dr. Loring's definition of a dairy cow, which I heard him make at a meeting of the farmers in Essex county, at D. V. Appleton's in Ipswich, was one of the best I ever heard. He defined a dairy cow; I cannot do it as well as he did, but he spoke of a dairy cow as one that was not necessarily a thoroughbred cow, for it was no matter whether she was a Holstein, or a Jersey, or a Guernsey, or any other breed, for every farmer will acknowledge it to be a fact that the typical dairy cow, when you find one, has one of the most splendid organisms in the world, and at the same time one of the most delicate. You take a cow that is very clean built, and firm, with rather a refulgent and prominent eye, thin neck, clean over the withers, and splendid constitution, with a straight back and very broad across the hips, with an immense barrel or V shape, looked at from behind, and an udder that is well forward, and at the same time that is well up behind and well wrinkled, and you have got a machine that is about as delicate, and which will take as little to throw into disorder, as any machine in the world. You take such a cow as that, no matter what her breed, and put her into a New England meadow and she will come in with the milk almost pouring out of her teats. You have got there a cow that will give in the flush from eighteen to twenty quarts of milk a day on good feed. But how easily that cow is disturbed? If a savage dog comes out and barks at her as she is coming from pasture to the barn, even if he does not bite her, what will be the result? That cow will probably drop off one half in the next milking.

But how is it with a beef cow? Nothing will upset her. That cow will travel in the cars and care nothing about it. But a delicately organized milker would take a week to get over it. The beef cow takes the food into her stomach and it goes

through the less delicate operation of being made into flesh. It does not require to be changed as much as when made into milk, and the beef cow thus does not need such a delicate organization as the dairy cow has. The beef cow digests her food and distributes it over the body and transforms it into meat just as you want it. Look at her disposition ; it is happy and contented like any child's. As Dr. Loring says, she might be standing under a tree, and if it was struck by lightning, if she was not struck herself, in five minutes she would forget all about it and would not know whether there had been a shower or not. This is the difference between a beef breed and a dairy breed. When we buy a cow I think we ought to recognize the difference between these two types of cows, and remember that we want one to make beef and the other to make butter.

I have said but little about the Guernsey cow. The Guernseys and the Jerseys are really twin sisters. Originally they were admitted to have been the same, but the types are now different ; and although those two little islands are but twenty miles apart, yet the breeds are very distinct. Their qualities are about the same ; that is, I think a good Jersey cow and a good Guernsey cow will make about the same amount of butter. The Guernseys are larger than the Jerseys, but they are bred that way, and the average on the islands — the average, for instance, of the two animals on the Island of Macoupin — is not as great as it is on the Island of Jersey. On these islands most of these breeders pay too little attention to their bulls ; but on the Island of Jersey they will pay five dollars for the service of a bull, and I think that they are going to accomplish wonderful results in the next few years, because during the last five years every bull from a fourteen or fifteen pound cow has had all the service he could take. The people are willing and eager to pay that amount for such service, and so they are likely to continue the service from these fifteen-pound cows.

On the Island of Guernsey they are behind the Jersey breeders. They are not up to the times, and the demand for their stock is not as great. Many of those old Guernsey farmers will drive a cow three or four miles to get service for a shilling, or twenty-five cents, and go right by the man who has the prize bull on the island and who only asks ten shillings, or \$2.50, for the service.

They don't realize the importance of bringing up the quality of their stock, and consequently they are not, in Guernsey, doing a great deal. I think, however, that in the next five years there will be a decided change and that the farmers will turn in the right direction.

I appreciate the Guernsey cow. I do not wish to be considered, as I told you to begin with, a Jersey breeder and only a Jersey breeder. The Holstein cow has got her place on account of the fact that she will make a large amount of milk, and you have the land and the feed to carry more Holsteins. I think there is no American breed like it, and I don't think there is any question about the value of the Holsteins for milk. They are a good farmers' breed, but they want the best feed and the best pasturage. I visited Holland three years ago, and I was never so much impressed with the abundance of feed in my life as I was in seeing what those cows were turned into. It would be like turning them into the best mowing-fields in the middle of June, when those big Dutch cows were turned out into the pastures in the morning. Those animals would get their belly full of feed within their own length and then lie down and chew the cud. During the whole day they would not wander away from the stable an eighth of a mile, they were in such an abundance of feed.

Take those cattle and put them on any New England dairy farm and what do you find? You will find that unless you supplement their pastures with a great deal of green fodder, — with an extra amount of green fodder, — those cows will deteriorate. They will easily lose many of their best characteristics. They have been bred for milk in such feed as this, and unless in some way you can keep up this abundance of fodder, you will not get so much butter from them. I do not think that dairy farmers, unless they are near some large cities, should make a large amount of milk, for these Dutch cows are not so well adapted to such circumstances as either the Jersey, or the Guernsey, or the Ayrshire. I regret very much, when I stop to think of it now, that the breeding of Ayrshires has not been kept up as much as that of those other breeds. As a boy I remember one of the most famous herds of Ayrshires that were ever brought to this country. They were selected by one of the best cattle experts we have ever known here. Those Ayrshires were famous for their milk, and

the results which were obtained here in Massachusetts were such as to encourage breeders to raise Ayrshires. There is no better place for a herd of Ayrshires than our New England pastures. That is because they are better adapted to our climate and better adapted to our pastures and our soils. They came home, so to speak, when they came to this New England, but the Dutch cow does not come home when she comes here. She is in a foreign land. I think that in the next fourteen or fifteen years, my judgment, that it will be well to breed Ayrshires, will be confirmed.

I would like very much to say a word about young stock. I think we find that there is many a first-rate farmer who takes the very best care of his dairy cows but who neglects his young stock. Gentlemen, without care and without skill you cannot have good dairy animals. You cannot have them unless you take care of them. Now I have served a great many times as an expert employed to buy cattle for a great many different gentlemen in this part of the country. I always stop and consider how those cattle will be taken care of after I buy them. I have been given *carte blanche* as to price and told to buy regardless of cost. They have said: "It don't make any difference how much you pay for the cows, but I want a good herd of twenty-five animals." If the man, after I buy those cattle, does not look out for them personally and does not understand their wants, but leaves them in the hands of a hired man and that man doesn't take any interest in the cattle, what is the result? In a year's time, although I have used my best judgment and paid the highest price, that herd of cattle will be nothing but an ordinary herd and a rather scrubby-looking lot of cattle. It doesn't make any difference how valuable they were at first if they are not properly cared for, whether they are Holsteins, or Ayrshires, or Jerseys, or Guernseys, or any other. It does not make any difference what breed you buy, for, after you have made a good selection, if it is not supplemented with care, they will go down hill very rapidly indeed.

If, on the other hand, the man gives me a low margin, beyond which the cost of the cow shall not go, and I buy a herd for him, and he is fully satisfied and takes an interest in it and has a first-class herdsman, what is the result? I have had such cases, and in three or four years I have visited the farm and found that I

should not know those cattle. Their improvement had been wonderful. They had been kept in the best shape and had grown to be perfectly satisfactory to their owner. Whereas, the most expensive herd that I bought, perhaps the same season, has gone all to pieces, and the man could not get twenty-five cents on a dollar for his cows.

That is so much for the care. I have been in positions where I have bought cattle for different uses, and I have seen many valuable animals in different herds. If I buy cattle I always try to keep up their acquaintance, and if I am in the part of the country where they are, I always visit them. I have always been impressed with the difference in the care of young stock. I believe that if an animal is not worth feeding well it is not worth taking care of at all, and, as I said to you to begin with, there are many farmers who take the very best care of their stock, but they don't seem to think that their young stock need anything more than just enough to support life, and very little of that, and even that little the poorest in the barn. If they can support life until the heifer comes into milk, they think that then it will be time enough to begin to take care of her and to feed her. I think this is a great mistake. I have seen two sisters from the same cow and from the same bull, and one was a runt and the other was a first-rate cow, and the difference was caused by the difference in their feed when they were calves. This treatment of young stock is not so common with thoroughbreds as it is with grades. The former cow was brought up as cheaply as it could be, and the latter was brought up as well as it could be, and the difference in the weight of those two animals was several hundred pounds.

These things come under the head of care and skill. Now I have given you my experience and my reasons for believing as I do, but I think many of you have heard them before, and I have occupied nearly an hour with this rather rambling talk. But if I have touched upon anything you want me to explain more fully in any way, I will do so with great pleasure.

Messrs. Tinkham and Burnett were tendered a vote of thanks and made honorary members of the association, after which the meeting was closed.

MILK AND FEED.*

BY G. S. PHILBRICK.

WE speak of the vast dairy interests of New Hampshire ; we read it on the pages of every agricultural journal. Who grasps the meaning of the words? Who comprehends it?

I am going to run the risk of being dull and prosy to-night by giving you a few statistics.

There are in Rockingham county 12,808 cows ; in Strafford county, 5,427 ; Belknap county, 4,970 ; Carroll county, 5,694 ; Merrimack county, 12,070 ; Hillsborough county, 16,002 ; Cheshire county, 8,355 ; Sullivan county, 6,396 ; Grafton county, 13,599 ; Coös county, 6,851, making a grand total in the State of 92,172 cows representing a cash value of fully \$4,000,000. From the most careful estimates based upon experiments in different parts of the State, I assume it will cost \$4,500,000 to feed the cows of New Hampshire one year. The interest on their cash value at five per cent will be \$200,000 ; add to this \$60,000 for taxes and at the end of the year we have \$8,760,000 invested in our cows, a sum equal to one fourth the capital stock of all the railroads in the State. Add to this the amount invested in buildings, creameries, and dairy utensils of all kinds, and you will then only have a part of what goes to make up one side of the vastness of the dairy interests in New Hampshire. Having thus briefly shown you something of the cost, let us turn to the other side of the account and see what we get in return for this vast outlay of money. Does it pay ? and, if not,

* Extracts from lectures on " Milk and Feed," delivered by G. S. Philbrick, member of the Board for Belknap county.

what is the reason, and whence the remedy? Unfortunately there are no data extant sufficiently accurate to be of much practical value; but from the best information at command, I think we may safely assume that the cows of New Hampshire will not average over six quarts per day for the entire year, and for the past year that milk has not been worth over two and one half cents per quart at the place of production. Three hundred and sixty-five multiplied by six gives 2,190 quarts, which at two and one half cents per quart equals \$54.75, as the gross income for each cow in the State for the year, or \$5,046,417 for the entire herd of 92,172 cows. Deduct from this the cost of keeping, interest, and taxes, and we have \$286,417 as the net proceeds. There are 32,000 farmers in the State of New Hampshire, averaging to keep three cows each. Dividing the \$286,000 among them in proportion to their cows, they will have the magnificent sum of nearly \$9 a piece. Doubtless nine tenths of them will have to invest that in commercial fertilizers to piece out the manure pile so they can raise enough to keep the cows another year. Startling as these figures may appear they can neither be gainsaid or denied.

That dairying as a whole in our State does not pay no thoughtful man will deny. That it ought to pay and can be made to is abundantly proved by the success of the few from Coös to Rockingham, who have studied the business and conducted it according to business methods. The first thing is an interest in the business and a determination to make a success of it. The next indispensable requisite is the cow. I know it is considered the correct thing to say that in the first place you must get a thoroughbred bull, and thoroughbred cows, etc., and to dilate upon the merits of the Jersey or the Guernsey, Holstein, Friesian or Short-horn, Swiss or Polled Angus, or some other breed which the speaker may chance to possess or fancy. But I do a great many incorrect things, and say a great many more, so you need not be surprised if I depart somewhat from the "beaten paths" in discussing this subject.

A herd of pure-bred cattle is "a thing of beauty" and may be a "joy forever," perhaps; I would say, get them by all means if you can. But the majority of us lack the necessary

capital to start with, and sundry other essential qualities which I will indicate farther on. What I desire is, to point out a course which is feasible and within the reach of every farmer, whether he keeps 100 cows or only one. You must have noticed that some of your cows give more milk than others, when fed the same quantity; weigh or measure each mess for a week and carefully keep the record for each cow. That will give you a pretty accurate knowledge of the amount of milk every cow gives. To determine the richness of the milk, I would recommend the purchase of a "cream gauge;" or, you can take common glass tumblers and fill them two thirds full of milk as soon as it is strained, while the animal heat remains in it, I mean, and set them in cold water or in a cool place for twenty-four hours, being careful that each has the same treatment as the other, as it is comparative results you are after. The accuracy of an experiment alone determines its value. Measure the thickness of the cream as you can readily do from the outside, and also make a note of its color and consistency. This test will have to be repeated several times in order to approach exactness. You will find probably a difference in the richness of the night's and morning's milk and a difference in the richness of the same cow's milk on different days, even though the feed remain the same. There is something going on in the laboratory of a cow's stomach which no chemist has as yet been able to fathom. Sunshine and clouds, harsh words or cruel treatment, excitement from any and every cause, affect both quantity and quality of milk, as every one knows who has made the cow a study.

Now if you find a cow in your herd that falls below the average in quantity and quality both, you want to dispose of her to the butcher as soon as may be. If, on the other hand, she lacks only one, no matter which, try a system of feeding to correct the deficiency. Of course you all know there are certain feeds which tend to produce large quantities of milk, while certain others will add richness. As a rule you will succeed. That there are exceptions I am bound to admit, for I have a cow in my herd at the present time whose milk I have been unable to bring up to thirteen per cent solids on a system of feed which has brought the average of my herd up to considerably over fourteen per cent.

TIMOTHY OR HERD'S-GRASS.

Dry fodder	88.81
Protein	6.02
Fat	2.20
Ash	3.98

ENSILAGE.

Water	76.004
Acetic acid . . . . .	.720
Sugar	1.638
Carbon, oxygen, and hydrogen	20.668
Salts or ash . . . . .	.970
	<hr/>
	100.000

In 100 parts of ash there are about as follows :

Potash	12.30	Sulphuric acid . . . . .	.68
Soda	18.57	Silica	29.36
Magnesia	9.58	Oxide of iron . . . . .	.61
Lime	9.68	Chloride of soda . . . . .	.46
Phosphoric acid	18.76		

The cows selected to experiment with were grade Durhams, three in number, two of them being farrow, having dropped their calves early in April, and the other one fresh, calving in September last.

ANALYSIS OF MILK.

Sample A. — November 24.

New milch cow fed on good hay with four quarts cob meal and four quarts of shorts daily.

Specific gravity, 1.032.	
Fat	2.021
Sugar	4.539
Casein and albumen	4.163
Salts . . . . .	.552
	<hr/>
Total solids	11.275
Water	88.725
Cost of feed	25 cents per day
Amount of milk	12 quarts
Cost per quart . . . . .	.021+

Water	86.309
Cost of feed per day	17 cents
Amount of milk	24 quarts
Cost per quart . . . . .	.0145+

For two years past I had produced very satisfactory results from feeding molasses on corn stover, straw, and coarse meadow hay after running them through an ensilage cutter, and it was deemed advisable to test it on ensilage. I accordingly procured a barrel, which cost twenty cents per gallon delivered at Tilton, and added to their feed one half pint daily to each cow. I put the molasses directly upon the ensilage, just as it was drawn from the cask.

I wish to say right here what I forgot to say earlier. These analyses have been verified step by step, the Board as well as myself not considering it safe to base a conclusion upon one analysis or one analysis of a given sample.

After the cows were well established on the feed containing molasses the milk showed

Specific gravity, 10.315.	
Fat	4.703
Sugar	4.786
Albuminoids	3.946
Ash601
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Total solids	14.036
Water	85.964

Of the new milch cow whose milk, as I have already stated, on the 24th of November showed but 11.275 per cent solids while fed on hay and grain, on ensilage, with the same grain, analyzed 11.840 solids; substituting cotton-seed meal for shorts, 12.300 solids, and with the molasses added, only 12.84 per cent solids, which, as you all know, is less than the amount required by law when the milk is sold in the market, while the amount of fat is so small (less than three per cent) she is not profitable for a butter cow and will go to the butcher.

I presume you know something of the patient care with which all agricultural questions are studied and examined by a large class of English farmers. From the "Breeder's Gazette" I

quote the following: "It has been a long time since we have read with more interest the results of an agricultural experiment than we have taken in the account of Lord Vernon's experiments in feeding dairy cows, submitted at the recent conference of the British Dairy Farmers' Association.

"Thirty cows, the best milkers in the herd, were selected early in January, and during the remainder of the month were given the same feed and treatment, and at the close of the month were giving an average of twenty-seven pounds of milk daily on a ration weighing with its soft food eighty-two pounds gross, containing thirty-eight pounds of dry matter, and costing ten pence per day. February 1 the cows were divided into three lots, and the rations changed to sixty-six pounds gross or 29.57 pounds dry matter, costing eight shillings and eleven and one half pence, which was continued for six weeks, at the end of which time the record showed the following average, to which the analysis of fats and solids is added :

Lot A — 26.0 lbs.,	12.38	per cent solids,	3.38	per cent fats.					
Lot B — 27.9 "	12.25	" "	3.28	" "					
Lot C — 28.7 "	12.51	" "	3.56	" "					"

It is to be regretted that in this experiment the different kinds of food are not given by name, and the relative proportion of each. I infer his herd is composed of thoroughbred animals, and consequently am not surprised that the total solids in each instance should fall below our standard of thirteen. Dr. Jenkins, one of the most celebrated milk analysts in the United States, in the Connecticut Agricultural Report for 1882 says: "In some seasons, in pure herd milk, solids may sink as low as 10 or 10.5, and the fat to 2.06, and very frequently solids are below 12." He gives the average of two hundred and eight samples as 12.40.

In Bulletin No. 22 (October, 1886) of the Massachusetts State Agricultural Experiment Station, it appears that from twelve samples milked at different dates from the cow Daisy, six were below thirteen, while seven samples out of thirteen milked from the cow Mollie were also below.

At the New Jersey State Agricultural Station out of one hundred and forty analyses representing the milk of two hundred and

thirty cows, seventy-six contained less than thirteen per cent solids.

In Orange county, New York, a clergyman for the sake of recreation, took a small farm and stocked it with imported animals, selected mostly by himself in foreign lands, as he is a man of considerable means. Yet only a few days ago he was fined one hundred dollars after the inspection of his milk in New York, by the New York authorities, because that milk did not come up to *twelve per cent solids* (the standard in New York). There was no question about the purity of the milk. There was a herd of ten or twelve cows, and this milk was the average milk of the whole.

In an article published in the "Massachusetts Ploughman" of October 16, 1886, Prof. H. E. Alvord, of the Massachusetts Agricultural College, says: "Instances have come to my knowledge very recently of perfectly pure milk failing to reach eleven per cent solids, not in the case of a single cow, but in the case of a number of cows of one herd, and that was a pure breed of expensive animals. I myself have sampled the milk of one of the best known herds in the United States, have been acquainted with the animals, and have known of their care for twenty-four hours before I took the samples, standing over the cows myself and taking the milk from the pail very carefully and mixing it with the other milk and carrying it myself to a chemist, who made an analysis in what I regard as a perfectly satisfactory manner, and yet not one of those samples reached *eleven* per cent solids. One of the cows was considered an unusually good butter cow, and was being fed at that time for a butter test."

So I might go on almost indefinitely, quoting from the experience of the owners of the best blooded stock in this country, but I think enough has already been said to convince you that there is something beside a pedigree necessary in the dairy cow, that the animal is of more importance, in the first instance at least, than her ancestry, that care and feeding have as much to do with results as breeding.

Mr. Burnett, of Massachusetts, the well-known breeder of Jersey stock, voiced the sentiments of more dairymen perhaps than he was aware of when in his address before the New Hampshire

State Dairymen's Association, a short time since, he said: "It is no use to try to disguise the fact that we have bred for 'points' so fine that we have nearly ruined the cow for practical purposes. We have got a pedigree as long as your arm, and a little runt of an animal with neither stomach nor constitution."

It is the testimony of such men as I have here given that leads me to repeat what I said at the start, that a thoroughbred bull or cow is not an absolutely indispensable requisite to success when you begin dairying. I would say begin with what you have. Make a study of each individual cow. Learn how to feed and care for them so as to make the most of them. By the time you have definitely settled their capabilities you will have gained from your own experience a knowledge of what is best for you to do to improve your herd that will be worth more to you than all the theories of all the men in existence. I have demonstrated to you that *milk from common cows containing four and three fourths per cent each of fat and sugar can be produced in mid-winter for one and one half cents per quart*. You can do the same. I think you can do better than that if you will try and not let one or two failures discourage you.

There are two ways in which dairying will pay in New Hampshire. One is by reducing the cost of production, the other by increasing the quantity and quality of the product. They do not run in opposite directions or at right angles. They are the two rails, if you will, of the road on which the car of success travels, and the more attention you pay to the spikes and ties the more certainly will she keep the track, and the greater the speed realized. From experiments made last winter I was led to believe a cow could be kept for fifteen cents per day in winter, and hold her flesh and milk. This winter's experiments have led me to conclude that a price considerably less than that will be reached in the near future. When I began feeding ensilage and cotton-seed meal I had a twofold object in view: first, to determine their values as feed; second, to see if they would injure the milk as milk, or affect the butter. So far the chemists have failed to discover any deleterious results from such feed, though they all tell you they don't believe it is fit to feed. Press them for a reason for the "hope that is within them," and they admit that

they cannot demonstrate it, but it is contrary to theory. I am not a scientist, in the general acceptation of that term, so when my experience does not corroborate my theory I accept the experience and let the theory go.

Ensilage is like canned fruit, governed by the same general laws and subject to the same vicissitudes. It is no longer an experiment, though from its novelty men are disposed to experiment a good deal with it. One fact, however, is pretty generally settled among men who feed it, *i. e.*, a good quality of ensilage will produce richer milk and more of it than any other known feed for the same money. What constitutes good ensilage, is a question easier asked than answered, and yet one familiar with ensilage can tell at a glance whether it is good or poor, whether cows would do well or ill if fed on it. It does not necessarily follow that ensilage is poor because it is sour, no more than it is proved to be good because it is sweet. I have seen sweet ensilage that I should have hesitated to give my cows. Last fall I cut about one half my ensilage corn and shocked it in the field, letting it stand two or three weeks; the other half was taken immediately to the barn and run through the cutter into the silo. The former made what is called sweet ensilage, while the latter was nearly as sour as vinegar, yet I could see no difference in the feeding value. The cows thrive equally as well on the one as the other, while the milk, in taste, odor, quantity, and quality, remained unaltered. In conclusion let me say just a word; if your cows are not paying you for all they eat, and more, too, there is something wrong, either with you, or the cows or their feed, and the first thing for you to do is to go to work with a determination to find out which. That question settled, take the necessary steps to correct the evil. Never for a moment doubt your ability to succeed in what you undertake. There is no climatic reason, there is no geological or physiological reason, or any other logical reason, why New Hampshire shall not become one of the most successful dairy States in the Union. There is light ahead.

BREEDS AND FEEDS.*

BY L. T. HAZEN.

A FEW days ago I was notified by the president of this association that I was selected to speak upon "Breeds of Cattle and Feeds," but he did not say for what purpose the cattle were designed, and we all know the breed best adapted to one purpose may not be for another. As this is a dairy meeting we will pass the Durhams, with mammoth frame, that with good rich feed will make mountains of beef, and the more symmetrical Herefords, with their white faces and beautiful forms, as well as the Polled breeds, that take on fat with great rapidity, and consider more fully the distinct dairy breeds, — the Holsteins, Guernseys, and Jerseys. Brother Goodell will tell us that the Holsteins are all that is desired and that we need not look further, and he has large ground for his opinion; but while a few breeders have produced large milk and butter records, we do not hear anything about feed or amount of milk for a pound of butter, but as he will tell all there is in their favor, I will leave them for him. A few years ago a couple of Yankees took a trip to England. While there they formed the acquaintance of an English farmer, who invited them to visit his place. They accepted and found everything very fine; but one thing they did not like. Whenever he showed them anything he remarked, "You have nothing in your country to equal that." They held their peace till they came to the dairy department, where they found all the

* Prepared for the Granite State Dairymen's meeting in January, 1887.

conveniences that money could buy. They passed through into the storeroom, where there was a row of cheese, and with true English pride he pointed to them and said: "Did you ever put your eyes on such a fine sight? You have nothing in your country to compare with that." Human nature could hold out no longer, and one of the gentlemen exclaimed, "That isn't much; one of my neighbors makes a cheese every day that weighs a ton." Seeing the look of incredulity upon the Englishman's face he turned to his companion and said, "Isn't that so, Jim?" He said: "I don't know as I ever heard the weight of his cheese, but I was up to his place the day before I left home and saw five saw-mills being run by the whey from his cheese." I have heard that that man kept Holstein cows. The Ayrshire is an excellent breed, giving a large amount of fairly good milk, are hearty, and whoever has them will think he has the best there is. Friend Gerrish will tell us there is no use talking, for the Guernseys have all the good qualities of all the breeds combined, so I will let him tell about them, and I will speak for the only breed to keep — the rich man's delight, the ladies' pet and pride, the poor man's friend and helper, — the little Jersey, with her graceful and symmetrical form, intelligent countenance, bright eyes, affectionate disposition, rich milk, golden butter, and in the opinion of such sound-minded men as Messrs. Tallant, Daniell, and Hazen, who are known throughout New England as men of excellent judgment and sound mind, this is the only breed that ought to be kept to any extent. When we consider the wonderful tests of butter made from the Jerseys we can but wonder how any one can be satisfied with anything else, and after people have owned one or more they invariably think they have found a gold mine, and if they work it well they surely have. I have occupied too much time already on breeds, and although my heart, mind, and soul are so firmly fixed on the little Jersey that it is difficult for me to leave the subject, I feel that I must go on to that of feeds. I will first say that breeds without feeds are of little avail. I prefer a poor cow well fed to the best one poorly fed. The man who has a cow and does not feed her well is not worthy the name of man.

Doubtless you have seen Prof. Arnold's description of feeds and their results on scientific principles. I will not go into the science of it but will briefly give my experience. When I started my dairy business I knew if I made it pay, hiring all the work done, it would require much study and thought. I would have to produce a better butter than the ordinary farmer to command higher prices. I found I must devise some means of keeping them well at a less expense than on hay and grain. I have tried nearly all kinds of feed by weighing and testing the results. There is no question but that good, bright clover hay and corn meal will make more and better butter than any other feed except grass. We cannot always get the clover hay, besides it is expensive, and corn meal is too heating to feed alone to cows that are intended for breeding. We have all heard of the Darlington of Pennsylvania with their four hundred cows, the butter of which is sold at one dollar a pound. They are constantly buying fresh cows of any breed, feeding very heavy with corn meal and no hay except clover, which they buy in different parts of the State. Their cows are always fat from the heavy feeding with corn meal, and as soon as they begin to reduce the flow of milk they go to the shambles and other fresh cows take their places. This practice could not be adopted by all here, and the question to answer is, What shall we feed? Two quarts corn meal, two of oats, two of bran, and one of cotton-seed in my opinion make the best grain feed for health, profit, and product. For the coarser feed, ensilage is a great saving of expense, and when properly put up will make good butter at a very small cost. I am wintering about sixty of my cows on ensilage at a cost of two and one half cents per day; with the grain feed it amounts to six cents per day. They are doing very well in milk and are in fine condition. I prefer a variety of feed, and oats cut when in the milk are an excellent feed. They will produce a large amount of milk and are a feed that every farmer should have. After regular spring work is done a few acres that will not cut much hay can be selected, plowed, and a few loads of manure scraped up, and enough oats can be raised to winter several cows at a small expense. They can be sowed any time before the first of July.

Few farmers realize the value of bran as a feed. German

chemists tell us that at the wholesale prices of nitrogen, phosphoric acid, and potash, the manurial value obtained from a ton of bran fed to milch cows is \$13.03, while our own chemists vary from \$11.60 to \$13.50. The manurial value of corn is only \$3.34 and oats \$3.80. This brings the actual cost of the bran very low if we consider the value of the manure.

AN ECONOMIC POINT.

BY C. C. LORD, HOPKINTON.

IN previous articles we have dwelt somewhat upon the economic importance of considering the obstacles to agricultural prosperity in New Hampshire. We now offer brief attention to a scientific inducement to the cultivation of such prosperity. As in the former case, so in this, we intend to follow the line of natural science. Hinderances and helps should both be contemplated with reference to the corporate law of nature, for enterprise must always pursue nature's path to be successful.

In the first aspect of the case, the majority of people in our State are obliged to work for a living. In its agricultural aspect, this living accrues from the soil. But there is a better prospect than is implied in the original statement. Scientifically speaking, a farmer works for only five per cent of his living; in other words, ninety-five per cent of his living is the spontaneous gift of nature. Let us explain what we mean.

Professor Stockbridge says that ninety-five per cent of our crops comes from the air, and five per cent from the soil. The plant-feeding organs are the roots and leaves. The leaves gather food only in the form of gas; thus its starch, sugar, oils, and gums are gathered. The real feeding-roots are the fine, hair-like threads that penetrate all through the soil. They do not feed on the soil, but absorb their food in the state of solution in water; thus they obtain their potash, silica, lime, magnesia, phosphorous, sulphuric acid, alumina, and lime. We presume that no informed person will deny the essential truth of this statement.

But it has a further illustrative application. We have in previous articles observed that the climate of New Hampshire is comparatively a cold one. The elements of plant food supplied directly by the air are the ones that specially endow the animal system with dynamic heat. Thus we see nature has admirably anticipated the needs of man in this instance. In New Hampshire, man needs much heat which nature, so to speak, gives him for nothing.

The supply of potential heat, so abundantly provided for man by nature, is remarkable in being practically exhaustless. Wherever there is life, there is heat in store. The leaves of plants appropriate gas. This gas is principally carbonic acid gas. It is a product of the breath of animal life, of every form of combustion, and of decay. It floats everywhere that organic decomposition occurs to free the carbonic elements of natural forms. In this source of supply there is but a little liability to loss. Indeed, it is affirmed that carbon need never be applied, as a source of plant food, to the soil.

The attention which agriculture needs to give to loss is applicable to those five other parts in one hundred that crops take from the soil. In growing, crops exhaust the soil; in selling crops, the farmer reduces the five per cent of the essential elements of a living; hence it follows that unless he makes a return of soluble elements of fertile soil, ruin must result in the end. Let us look at his sources of replacement.

A portion of the fertilizing elements of the soil is relatively spontaneous; in other words, a part of the loss resulting from the farmer's operations is resupplied without labor. Floating in the air, derived from various forms of decomposition, are other than carbonaceous elements of plant growth, and which may be washed out of the air and into the soil by rains. M. Borral estimated that, by the aid of rain, there fell annually upon an acre of English land $45\frac{1}{2}$ pounds of nitrogen, 103 of nitric acid, $19\frac{1}{2}$ of ammonia, $12\frac{1}{2}$ of chlorine, 35 of lime, and 11 of magnesia, making $226\frac{1}{2}$ pounds in all.

Much of the aggregate of loss occurring by agricultural production and enterprise is resupplied from direct experimental sources. Domestic and culinary waste and animal excreta fur-

nish an amount of fertilizing supplies that, with all our knowledge, is yet very much overlooked. The sink-drain, the vault, the yard, and the hovel yield potential supplies that are incredible to any but one who has given thorough attention to them. Let us look at one item. A few years ago, Hon. Z. A. Gilbert, of Maine, made a startling announcement that a cow will annually void 20,000 pounds of solids and an equal amount of liquids. We presume a good cow, well fed, is meant. The statement seems doubtful at first, but let a man determine for himself how much in pounds a well-fed, good cow will void in a day, and then multiply the amount by 365, and see if the result is not surprising. It is needless to deny that that much of the fertilizing resource of the direct operations of farming is lost. It can be better saved by better receptacles, better composting, and especially by better inclosures for stock. It is time to ask the serious question, if it is not better to soil the stock, saving the solid and liquid excreta for fertilizing purposes, than to allow so much ranging in pastures, incurring loss in various ways, as will appear to a thoughtful, investigating mind. In time, farmers of intelligence will be compelled to consider that, in pasture, stock treads up food, wastes manure, and browses the forest, at the same time with less profit in direct product than can be secured by proper inclosures, regular feeding and watering, and sufficient air and exercise.

However, in the practice of the strictest and wisest economy, the farmer who sells must buy. Selling the native elements of the soil in crops and produce, he must buy them back in fertilizers. We now approach a very important proposition. If the farmer cannot sell more in value than he buys, he cannot prosper. What is the source of his possible prosperity in selling and buying? In the superiority of the products of art over those of nature. It may seem strange to some to mention agriculture as an art; but it must be an art if it is to be a success in the present contingency. If a farmer must pay \$30 or \$40 a ton for guanos and phosphates, he must produce something as a result that is worth more than \$30 or \$40. Taking something and making something of more value from it, is art, and nothing else. So long as a New Hampshire farmer can rely for fertilizing supplies upon natural ones of guano and

phosphate rock, manipulated slightly and at less cost, and can turn them into vegetables, fruits, corn, grain, beef, mutton, pork, etc., representing skilled labor and commanding a higher price, his prosperity is secure. That such a possibility is real, is shown by Hon. J. B. Walker, of Concord, in a pamphlet on "Indian Corn," asserting that fifty bushels of corn at seventy five cents a bushel, or \$37.50 in the aggregate, is \$26 more than the cost of the commercial fertilizers necessary to produce it, while there is also an infinitesimal profit on the fodder.

Our economic point involves three subordinate hints : First, nature has anticipated the needs of human life in a marked degree ; second, man should aim to avail himself of the aids nature holds out to him ; third, the products of industry should be of the best possible character, in order to more than counter-balance the value of partially spontaneous, necessary supplies. Agriculturally and locally viewed, New Hampshire farmers have a large income from nature ; they should make the most of their immediate resources ; their products should be of the best seed, the best blood, and the best management.

SOILING.*

BY HON. WARREN BROWN.

AMONG the many questions which have received attention by the agricultural press, and have been the subject for discussion at farmers' clubs and institutes, I have been much surprised that the subject of soiling cattle, which is feeding cattle at the barn during the summer season when they are usually fed in the pasture, upon green food taken there for the purpose, has not received more attention and is not oftener alluded to. Certainly it is a subject worthy of our attention, and of great importance to the farmers of the New England States.

In 1819 the Hon. Josiah Quincy prepared an address upon the "Soiling of Cattle," which was delivered before the Massachusetts Society for the Promotion of Agriculture, and which has since been published in book form, and to-day is the only standard work upon the subject. He treated the subject in an exhaustive manner, proving conclusively the great advantages to be derived from the adoption of the system, and it showed him to have been very far in advance of his times as a practical and scientific agriculturist. He made the following claims as to the advantages of soiling: First, the saving of land; second, saving of fences; third, the economy of food; fourth, the better condition and comfort of the cattle; fifth, the greater production of milk; sixth, the attainment of manure. Each of these claims is supported by able and conclusive arguments from actual experiments upon his own farm and under his own practical direction,

* Read at a farmers' meeting held at New England Agricultural Hall, Boston, Mass., February 26, 1887.

with results which proved it to have been both feasible and profitable even at that early period, when agricultural matters had received but little attention as compared with the present.

Mr. Quincy found that one acre in soiling would keep as much stock as from three to seven in pasturage, the degree of saving being varied by the kind of crops and methods of cultivation. By soiling his cattle he was able to do away with many of the interior fences about the farm, which not only gave a tidy appearance to the fields, but greatly facilitated the cultivation by the absence of head-land and bushes. The many ways in which cattle destroy food in the pasture may nearly all be prevented by feeding at the barn, and it is here that much of the economy of the system comes in. Experience has shown that many plants will be eaten in the stall which are rejected in the pasture. The cattle are kept where they are seen daily, and are under the intelligent care of the attendant, which cannot be the case when fed in the pasture. Any animal which needs extra attention can be readily seen, and liability of loss from neglect much lessened.

It was found that during the flush of feed in the early part of the season the product of milk by pasturage might be greater; yet, taking the season through, the advantage was found with the soiling system, as a continuous flow of milk could be kept up even in unfavorable seasons. One of the greatest benefits was found in the production of manure. By the pasturage system, nearly all the summer manure is lost by being dropped in waste places and by evaporation. By the soiling system, the manure is all saved, and cared for in a manner which admits of little loss. The soiling system extends from June to November inclusive. Mr. Quincy began to cut the grass along the roadsides and in the orchard on the 31st of May, and continued this till the 7th of June, when winter rye, sown for the purpose the fall before, was cured, but was found to be tough and not well fitted for the purpose, and a return to grass was had until the 6th of July, from that date until the 21st. Oats, which had been sown for the purpose, were fed then for a few days; barley was used from that time until the close of the season. Indian corn, with the tops of vegetables, formed the most of the green feed; in

addition to the green feed, a feed of salt hay was given daily during the latter part of the season. It was found that twenty head of cattle had been fed through the season from seventeen acres.

I have been more particular in relating the details pursued by Mr. Quincy, because his methods of feeding must be very nearly followed by those who adopt the soiling system at the present time. All the circumstances which rendered the system of soiling desirable and profitable at that time exist to-day, and to a much greater degree. If it paid then, it can be made to pay much better now. The growth of cities, towns, and villages has made an enormous supply of milk necessary, and no inconsiderable portion of the farms in New England are devoted to the production of milk. This has very largely increased the number of cows kept. As the milk supply must be kept very nearly uniform throughout the year, the feed must be in the same ratio, and a great deal of care and attention must be given in order to attain the best results.

While most farmers give a great deal of attention to the improvements of the fields, scarcely any attention has been given to improving the condition of the pastures, and, from close feeding, overstocking, the effects of drought, and the want of any care, the pastures of to-day will carry much less stock than sixty years ago, and the proper feeding of cows in the pasture is a matter of great uncertainty. On most farms much more stock can be wintered than can be well pastured in the summer. On many farms more cows are kept than can be properly fed in the pastures, and a partial system of soiling is resorted to on most milk farms, and on not a few the entire system of soiling has been adopted. For the first feeding, winter rye is sown, but it is not one of the best plants for the purpose ; its earliness is its greatest recommendation.

There is no better crop for feeding than grass, and a great deal may be cut about the roads, walks, gardens, and orchards which would otherwise go to waste. Upon a farm which is under a high state of cultivation the amount of feed which may be thus obtained will be found very great, and would surprise any one who has never given the subject any attention. I have some

two or three acres of grass receiving the wash and drainage from the yards and buildings, which produces an immense growth, and will begin to lodge by the last of May, and if made into hay is of a poor quality, not readily eaten by any kind of stock, but when cut green is eaten readily. Two years ago from two acres of grass we fed twenty cows during the month of June. The first of August we commenced to cut it again, and from the two acres and two acres adjoining fed the twenty cows six weeks ; in addition to the grass, one half bushel of brewers' grains was fed daily. The cows were kept in good condition, and yielded a large flow of milk. I have found clover an excellent feed for the purpose, and use a great deal of second crop in this manner. There are a great many places in the fields where enough second crop may be had for a day's feed, the removal of which is a positive benefit to the field. Those who adopt the soiling system will look closely after all such sources of feed. After the first of August, corn stalks from corn grown for the purpose will be the main dependence until the end of the season. The fodder from sweet corn is much better than that from the southern varieties. Cattle eat it much better. Even the large stocks will be all consumed. The uncertainty of growth and germination of sweet corn and the high price of seed are drawbacks on its cultivation. Since the introduction of ensilage a great help is found in carrying out the system, as an equivalent of green food is always at hand, and the providing of crops to be fed before grass can be had may be dispensed with. Where ensilage can be had there is no need of rye, which is the least satisfactory of the feeds used during the season.

No one should now attempt the soiling system unless in connection with the silo. When cattle are fed in this way, it is economy to use some grain, and a small feed daily of dry hay will be a benefit. I have used salt hay for this purpose with very satisfactory results, it being well relished by the cattle after eating so much fresh and green food. Cattle which are fed in this way should be turned out for a few hours each day, for exercise, into a convenient pasture or shady inclosure. Neglect of this will have an injurious effect, causing the animals to become stiff, with danger of losing the use of their limbs. Cattle which are fed in this

way may, in a great measure, be protected from the annoyance of flies, which in some seasons are exceedingly troublesome and seriously reduce the profits of the animals. Upon the Wisconsin college farm an experiment was made with six cows; three were fed by the old system of pasturage, and three by soiling. One acre of pasture yielded 1,779 pounds of milk, which produced eighty-two pounds of butter. One acre in soiling crops gave 4,772 pounds of milk, which yielded 196 pounds of butter. The pasture was of the best blue grass, and would carry one cow to the acre the season through, under favorable weather conditions. This pasture was very different from our New England pastures, where it would require six or seven acres oftentimes to feed a cow, and causing much more labor for the cow to gather her food over the larger area, and which would materially reduce the amount and value of her products. If it will pay to soil in Wisconsin, it will be found still more advantageous to our farms in this part of the country.

The great want upon New England farms to-day is manure. Our soil has been very much reduced by repeated cropping, careless cultivation, and by a bad system of agriculture which neglected to return plant food to the soil, until we can no longer produce paying crops, or profit from our labor, without doing something to enrich the soil. How to get manure is the great question with our farmers. Those who live near thickly settled places may purchase; some may try to depend on commercial and special manures, which are costly, and may in the end defeat the object sought. With a great majority of our farmers barnyard manure must be the main dependence, and it cannot be had without the keeping of stock.

The best agricultural minds of the country believe that there is an intimate relation between the keeping of stock and improved agriculture, and that ordinary farms cannot long be profitable without the presence of live stock. There is no better way of increasing the supply of manure than by keeping more animals, and there is no way in which more stock can be kept so cheaply and the amount of manure increased than by soiling. The advantages of making manure in this way are, that the manure is upon the premises, with no expense for purchase and cartage; it

can be better cared for, for we assume one who is feeding in this way has a suitable receptacle to receive and keep the manure where little will be lost by washing or evaporation ; it may be moved and applied during times of leisure.

Mr. Quincy considered him a very poor farmer who had not in his time a covered receptacle for the reception and keeping of the manure thus obtained, and it is to be regretted that on many farms to-day sadly in need of manure a great deal of the manure is still allowed to go to waste. Such farmers are not likely to soil their cattle, as they are not of the kind to make successful farmers, and not easily impressed with better methods requiring more industrious habits and a larger expenditure of labor. Many may object to soiling on account of the extra labor involved. But where can labor be more profitably employed when all things are taken into account ? Animals to return a profit must be well fed and cared for, and only such as receive constant attention can be counted on to do this. A full supply of food each day is absolutely necessary, and this in our climate cannot be depended on unless some provision for obtaining it has been made, and some one is in attendance to see that the animals, each and all, receive their proper share. Labor can nowhere be more profitably employed than in the production, saving, and application of manure.

Many sources of income from the farm are at the expense of its fertility, and tend to impoverish the soil, as many an old and run-down farm will attest. It is the part of wisdom to adopt such methods and sources of income when possible as will add to the productive capacity of the farm by increasing its fertility, and no better and safer course can be pursued than by the feeding of more live stock, which can be done easily and at no great expense by soiling, and thereby turning much food to good account, which under the old system would be lost. When all such feeding material is carefully saved, it will add much to the neatness and general good appearance of the premises. For two seasons I had a large number of sheep in a small pasture near home, many more than the grass growing there could feed. It was our custom daily to carry them some kind of feed. During the growing season all kinds of vegetation which we desired to

get rid of were carried to them ; weeds of all kinds, bushes, and all such things found their way to them. All such plants were eaten greedily except our yellow dock, which they utterly refused to eat under any circumstances. We got rid of much matter not wanted, the sheep were thoroughly domesticated, and the pasture was much improved, scarcely a weed or bush surviving the two years of sheep pasturage. There is no better method of reclaiming our pastures than by feeding sheep upon them in the manner alluded to above. This, although not strictly coming under the subject as announced, will tend to prove the great value of the soiling system to improve our farms. In my own practice I have found the system to work in a satisfactory manner, having fed the past season forty head of cattle by a partial soiling, giving them a daily run in the pasture. The pastures would not of themselves have carried over one third of that number. So well am I pleased, that I have no hesitation in recommending it for general use by our New England farmers where the keeping of stock is desirable.

THE OBJECTS AND AIMS OF EXPERIMENTAL WORK WITH FERTILIZERS.

BY G. H. WHITCHER, SUPERINTENDENT AGRICULTURAL COLLEGE
FARM.

ONE of the questions sometimes asked by middle-aged farmers is, Why do we hear so much about fertilizers to-day while forty years ago almost nothing was known either of bone fertilizers or of mineral products now used? This question, put in various ways, opens up the whole field of agricultural history and very largely affects future progress. I find some very curious articles in the old agricultural journals (curious in the light of to-day), which give an idea of the change which forty years have brought about.

Before giving the opinions of our own agricultural writers, I will go back almost a century and quote from an Englishman, William Strickland, who in 1794 traveled through the United States with the sole object of looking up our agricultural resources and practice. In his report to the British Board of Agriculture he says: "The course of crops in this State (New York) is as follows: First year, maize; second, rye or wheat, succeeded immediately by buckwheat which stands for seed; third, flax or oats or a mixed crop; then a repetition of the same thing as long as the land will bear anything, after which it is laid by without seed for old field; or, burn the woods, then sow wheat, second rye, then maize four or five years, or as long as it will grow, then lay it by and begin on fresh woodland. . . . A Dutchman's course on the Mohawk was: First year, wheat; second, pease;

third, wheat ; fourth, oats or flax ; fifth, maize. In his father's time the crop used to be twenty bushels of wheat per acre, but he complained much now that his land only produced ten bushels."

Speaking of manure, Strickland says: "Manure is rarely made use of, but what little is collected is given to the maize which requires every support that can be given it. . . . Clover is just beginning to be cultivated. . . . The average yield of wheat in Dutchess county, which under proper cultivation would be a most productive as it is a most beautiful country, is sixteen bushels per acre . . . and it will be found that the average of this State (New York) is superior to that of any other in the Union."

This, it is true, is the opinion of an Englishman at a period when the United States had become "sour grapes," but in 1790 Washington wrote to Arthur Young that the average yield of wheat in the country was eight bushels per acre, and added by way of excuse: "In a new country, where land is plentiful and sheep and labor dear and scarce, it is more profitable to till large areas badly than small areas well."

Coming down to a more recent period, we find some very pointed advice by Judge Buel, who may be considered the pioneer in agricultural journalism in this country. In 1834 he stated things very forcibly in the "Albany Cultivator," as follows: "The method of farming that has heretofore been generally adopted in this country was to cultivate that kind of crop which gave, temporarily, the most profitable returns, utterly regardless whether by a succession of exhausting crops the soil became impoverished or not. Indeed, it was not till of late years even thought necessary to aid its fertility by such a thing as a rotation of crops or the regular application of manure. The manner was to crop it as long as a particular kind of grain could be made to grow on a given field, and when every particle of fertility was at length extracted from the soil, that lot was thrown away as worthless, a new clearing was made, and the same *bad practice* continued."

Again in 1837 Judge Buel urges the importance of a less exhaustive practice, and says: "In traveling westward we have remarked an astonishing recklessness among farmers in regard to

their manures, the primary source of fertility. But few cattle-yards are cleaned in the spring, and many not at all. This applies particularly to the country east of Onondaga; west of that the great wheat farmers sometimes take a more summary way to disencumber their barns and yards,—they cart their straw to the fields and burn it. How long will it take to bring down the fertility of the prolific West under this system, to bring the land down to the standard of worn-out lands?" Returning now to our question, and we may say the reason why we hear so much about fertilizers to-day is, that by continued cropping and a failure to return the substances taken away the original fertility of the soil has been drawn upon until the supply is reduced below the requirements.

Perhaps we are not careful to remember that our crops are dependent upon what reaches their roots and leaves for the material from which to increase in size. Plants cannot *create* material. If a seed of corn produces a stalk that weighs five pounds, it has done this at the expense of the soil and atmosphere, and to aid us in remembering the facts in the case let us look at the composition of some crop the past year. I planted a field of ensilage corn, which was harvested from measured acres and every load weighed, so that the results are as accurate as is possible. Then at harvesting time samples were taken from the field and analyzed in the college laboratory.

The sample stalk taken September 22, 1886, gave the following analysis:

[illegible]

The yield per acre was twenty-two tons, and from the analysis I have computed the following amount of various substances that were taken away from an acre of the land :

AMOUNT REMOVED PER ACRE.

Water	35,015 pounds.
Carbohydrates (starch, sugar, gum, etc.) . .	6,763 "
Albuminoids (containing nitrogen 86.7 lbs.) .	537 "

Fiber	1,350 pounds.
Total ash, 335 pounds, containing	
Potash	72 “
Phosphoric acid	20.2 “
Other ash always abundant in the soil	242.8 “

Now it is evident that nothing could have been taken from the soil except what the analysis shows to have been in the crop, and it is also evident that the whole of the 44,000 pounds must have come from the soil and air, and this brings us to a consideration of the source from whence the plant gets the elements which go to make up the crop. Of course the water in the crop comes from the water in the soil, and is therefore no tax on the fertility of the land; this takes seventeen and one half tons of the total twenty-two tons out of our calculation. The carbohydrates, including such substances as starch, sugar, gum, and cellulose, and the fiber are made up of three elements, carbon (or the charcoal left after burning any part of a plant in a retort, where air cannot gain access), hydrogen and oxygen (both of which are gases and which unite to form water). In various ways it has been proven that plants may take the whole of their carbon from the air; indeed, it seems probable that they do so get the whole or nearly the whole of it. Hence we have 6,763 pounds of carbohydrates, and 1,350 pounds of fiber or cellulose, which come from the carbon in the air and the moisture of the soil, a little over four tons. Here we have, then, twenty-one and one half tons of our crop coming free to us from the air and the rain, bringing no soil exhaustion and requiring no return in manure or fertilizer. In like manner eighty-four per cent of the albuminoids come from the air and water, which, in the case under consideration, amounts to 450 pounds; or, to recapitulate, we have :

Water taken from the soil	35,015 pounds.
Carbon (from air), oxygen and hydrogen (from water), the three going to form carbohydrates	8,113 “
Carbon, hydrogen, and oxygen, forming eighty-four per cent of the albuminoids	451 “
Total from air and water	43,579 “
Whole weight of crop	44,000 “
Balance to come from soil	421 “

Now we are chiefly interested in the composition of this 421 pounds, for we have seen that this alone comes from the soil, and it is to this that we must look if we hope to get any practical suggestions to aid in fertilizing the land for this crop. It is clearly true that if there are parts of this ash which are always overabundant in all soils, then it is useless to cause expense in applying such parts to the soil. On the other hand, if certain parts are deficient in the soil, it necessarily follows that we must furnish these parts in some fertilizing material.

The following table will show of what the 421 pounds consist :

Nitrogen	86.7 pounds.
Silica	122.0 "
Potash (K_2O)	72.0 "
Lime	37.0 "
Phosphoric acid (P_2O_5)	20.3 "
Magnesia	19.0 "
Sulphuric acid	19.0 "
Soda	11.0 "
Sulphur	11.0 "
Chlorine	23.0 "
Total	421.0 "

With the exception of the 86.7 pounds of nitrogen, the whole of this material was in the ash, and from the nature of the substances must have been taken up from the soil by the roots of the plant. We must now see if any of these are always abundant in the soil. Silica is usually present in such quantities that no attention need be paid to it; lime, also, in many sections is present in large quantities, but this is not invariably the case. A soil may be deficient in lime, and under such conditions it becomes just as necessary to apply this material as any other. Magnesia is not always overabundant, and hence may sometimes become necessary as a form of plant food to be added. It is by no means certain that soda is essential to the plant, and therefore the application of soda is unnecessary. Sulphur and sulphuric acid are in most cases abundantly supplied by the soils and it is also true that sulphuric acid is generally present in all fertilizers applied.

Johnson gives the total plant food in an acre of soil in Scot-

land and also the amount required by an average crop of barley, and then assuming that all of this food is available (which is not true) he finds that the soil under consideration contains enough

Lime for	.	.	.	.	.	.	6,138	average	barley	crops.
Potash for	.	.	.	.	.	.	648	"	"	"
Phosphoric acid for	.	.	.	.	.	.	292	"	"	"
Sulphuric acid	"	.	.	.	.	.	288	"	"	"
Nitrogen in ammonia for	.	.	.	.	.	.	31	"	"	"

In the vast majority of cases it is found that we need consider only the three forms of plant food, nitrogen, phosphoric acid, and potash, in a few cases lime and sulphuric acid, and in probably still fewer magnesia and chlorine.

Briefly, then, a crop of ensilage corn takes away from the soil the following amount of plant food, which needs looking after :

Nitrogen	.	.	.	.	.	.	.	86.7	pounds.
Potash	.	.	.	.	.	.	.	72.0	"
Phosphoric acid	.	.	.	.	.	.	.	20.3	"
Total	.	.	.	.	.	.	.	179	"

Hence it becomes a simple question of providing this amount of available matter in either animal manures or in chemical fertilizers.

HOW SHALL WE DETERMINE WHAT OUR SOILS NEED ?

Once it was said, have a sample analyzed by the chemist and see what is present, and from this draw conclusions as to the needs of the soil. Now in theory this is all right, but there are fatal objections in practice. When a chemist analyzes a soil, he finds the total amount of potash present, and the same with nitrogen and phosphoric acid. Now it may happen that there is an abundant supply of each of these, and yet the plant may be unable to get at any, for it may be unavailable. Suppose, for example, that I take a bushel of the most barren sand that can be found, then put it in a retort and heat it until every particle of organic matter is driven off. I will then run pure water through it until I have

washed out everything that is soluble. In this way I have got a soil as barren as a granite boulder, and should a sample be sent to the chemist, he would return no potash, no nitrogen, no phosphoric acid. But on the other hand, I will take a portion of this sand and mix with it a few pounds of ground leather chips, five pounds of powdered feldspar, and five of powdered Canadian apatite or phosphate rock. These materials would furnish, respectively, nitrogen, potash, and phosphoric acid, and it would follow that such a sample being sent for analysis would be returned rich in each of these forms of plant food, but a plant placed in such a mixture would starve because the necessary food though present is unavailable. Now this in an exaggerated way illustrates the difficulty in the way of soil analysis, but it is by no means the only difficulty. The difference between a fertile and an infertile soil is an unweighable quantity, when we consider the small quantity of soil usually taken for analysis. Let us illustrate an extreme case; we will take an acre of land which produces but a very poor crop of grass and to an acre we will apply 100 pounds of nitrate of soda, which amount will, in many cases, produce a wonderful result. This would give $\frac{1}{27}$ of an ounce of the nitrate per square foot of surface, but only fourteen per cent of the weight of nitrate of soda is plant food, so that each square foot of surface receives $\frac{1}{190}$ of an ounce of nitrogen; but the first rain that falls after the application washes this minute quantity downward through the first nine inches of the surface, and the sample of soil for analysis would be taken from this depth. Now a square foot of soil nine inches deep weighs about sixty pounds, or nine hundred and sixty ounces, and from this we have $\frac{1}{190}$ of an ounce of nitrogen in nine hundred and sixty ounces of soil, or one ounce of nitrogen in one hundred and eighty-two thousand four hundred ounces of soil, or .0005 of one per cent of the whole soil, an amount evidently too small to be determined with any degree of reliability.

Must we give up the attempt to discover what our lands need? By no means. There is a method which is within the reach of every farmer in New Hampshire, and in my opinion it is the only way of getting at reliable, practical results. I refer to

As already stated, the fertilizing effect was first attributed to the 30 pounds of animal matter, but after a time it was found that boiled bones, from which one half of the animal matter was removed, were quite as effective as unboiled ones, and still later, that bone ash from which all animal matter was removed, proved as valuable as the whole bone. This, of course, was fatal to the animal matter theory, and in its place had to be substituted the theory that the mineral part of the ash of the bone contained the true fertilizing matter. Now, from the above analysis, it is evident that, practically, all of the ash is calcium-phosphate, a compound made up of twenty-four pounds of phosphoric acid and thirty-four pounds of lime per hundred-weight of bone. That this limited quantity of lime was insufficient to account for the increased crops known to result from the use of bone, was proven by actual trial, and it left only one compound which could be the source of plant food, namely, phosphoric acid ; thus it was that soils were shown to be benefited by phosphoric acid.

Again, practice had demonstrated that saltpeter was a valuable fertilizer for wheat. This was known as long ago as 1625-50, but no records are made of its use experimentally until 1825. Saltpeter is a compound of potash and nitric acid, and, of course, the results might be due to either of these substances. To decide this matter, an English farmer in 1883 carried out the following experiment :

Three equal areas of grass were watered daily : one with pure water, another with a weak solution of nitric acid, and a third with a solution of potash. The results showed that both the nitric acid and the potash were beneficial. In this way it was shown that nitrogen, potash, and phosphoric acid are needed on exhausted soils.

SOURCES OF PLANT FOOD.

The first aid to languishing fertility in any country is animal manure. It is a standard product the world over and the more advanced the art of agriculture becomes the more carefully the animal manures are guarded that no loss may be suffered.

Of course the manure comes primarily from the food, and under varying circumstances has different value.

Suppose, for example, that an ox weighing 1,500 pounds is standing idle, neither gaining nor losing in weight, he will require daily, according to the German feeders, 20 pounds of oat straw and 7 pounds of good hay ; of course, in this case, he will consume in 365 days 7,300 pounds of straw and 2,555 pounds of hay.

The following table shows the number of pounds of water-free substance, ash, and plant food contained in this yearly supply of food :

	Dry substances.	Total ash.	Nitrogen.	Phosphoric acid.	Potash.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Straw, 7,300 lbs. .	6,278	321	29.2	13.1	70.8
Hay, 2,555 lbs.. .	2,197	168	33.4	10.4	43.4
Totals . .	8,475	489	62.6	23.5	114.2

Now in this case it becomes evident that as the animal neither gains nor loses in bodily weight, the whole of the material in the food must be found in the manure, and if we can find some relation between the food consumed and the manure produced, we can get at the general composition of the whole. From the following experiment, which I made at the college farm in August, 1885, we may be able to get a few figures which will show the solid and liquid manure produced from a given quantity of food :

EXPERIMENT IN FEEDING.

August 15, 1885, a yearling bull weighing 795 pounds was put on to the following daily ration : Herd's-grass hay, ten pounds ; oats, unthrashed, twelve pounds ; wheat bran, two pounds. This ration was used five days, and the waste fodder weighed, also the water drank. August 20 the same bull was put on to a ration composed of hay, ten pounds ; unthrashed oats, twenty pounds ; wheat bran, two pounds, daily, which was continued eleven days, with the same percentage as before. In each case the solid and liquid manure was saved and weighed. The method adopted to save all liquids was to bed with a known weight of pine sawdust enough to absorb all liquids, and at the end it was only necessary to deduct the amount of sawdust to get at the exact amount of

the animal's voidings. All of the food, the sawdust, and the manure were analyzed by Dr. R. T. Burleigh in the college laboratory with the results given in a subsequent table :

I.

TABLE SHOWING COMPOSITION OF FOOD USED.

	Water.	Fiber.	Albuminoids.	Carbohydrates.	Fat.	Total ash.	Nitrogen.	Phosphoric acid.	Potash.
Timothy hay.....	13.27	28.20	7.00	44.02	3.23	4.28	.....	0.175	0.78
Unthrashed oats	34.23	22.73	6.81	28.64	4.11	3.48	.....	0.14	0.51
Wheat bran	11.37	12.28	10.66	55.30	4.38	6.01	.....	1.75	0.53
Waste—unconsumed.	17.49	32.90	1.32	41.84	0.79	5.04	.....	0.18	0.44
Manure and sawdust.	78.00	.....	.....	.....	.....	2.20	0.40	0.10	0.11
Sawdust	44.39	.....	.....	.....	.....	1.00	0.16	.....	.....
Manure alone.....	82.50	.....	.....	.....	.....	2.40	0.45	0.11	0.12

II.

TABLE SHOWING FOOD CONSUMED, WATER DRANK, GAIN, ETC.

	Period.	Live weight.	AMT. CONSUMED.				Value of food.	DAILY.					Food unconsumed.	Dry substance per lb. of grain.	Per cent of water in total food.
			Hay.	Oats.	Bran.	Water.		Grain.	Water drank.	Air dry food.	Dry substance.	Manure.			
Aug. 15	.....	Lbs. 795	Lbs.	Lbs.	Lbs.	Lbs. ....	.....	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
Aug. 20	I.	805	50	60	10	244	\$0.82	2	49	23	17.5	40	5	8.7	75.7
Aug. 31	II.	845	110	220	22	577	2.31	3.63	52.5	28	20.2	42	45	5.5	73.6

III.

TABLE SHOWING VARIOUS CONSTITUENTS OF FOOD CONSUMED IN EACH PERIOD.

PERIOD I. — FIVE DAYS.										
	Amount.	Water.	Albuminoids.	Carbohydrates.	Fat.	Fiber.	Total ash.	Nitrogen.	Phosphoric acid.	Potash.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Herd's-grass hay.....	50.	6.63	3.500	22.01	1.61	14.10	2.14	0.560	0.087	0.39
Oats.....	60.	20.53	4.080	17.18	2.46	13.63	2.09	0.652	0.084	0.306
Bran.....	10.	1.13	1.060	5.53	0.44	1.23	0.60	0.170	0.175	0.053
Totals.....	120.	28.29	8.640	44.72	4.51	28.96	4.83	1.382	0.346	0.749
Left unconsumed.....	5.	0.87	0.066	2.09	0.04	1.65	0.25	0.010	0.009	0.022
Balance taken into system.....	115.	27.42	8.574	42.63	4.47	27.31	4.58	1.372	0.337	0.727
Water drank.....	244.	244.00	.....	.....	.....	.....	.....	.....	.....	.....
Total water in ration.....	.....	271.42	.....	.....	.....	.....	.....	.....	.....	.....
Manure, solid and liquid.....	200.	165.00	.....	.....	.....	.....	4.80	0.900	0.220	0.24
PERIOD II. — ELEVEN DAYS.										
Hay.....	110.	14.59	7.70	48.42	3.55	31.0	4.70	1.230	0.192	0.858
Oats.....	220.	75.30	14.08	63.00	9.04	50.0	7.65	2.390	0.308	1.122
Bran.....	22.	2.50	2.34	12.16	0.96	2.7	1.32	0.375	0.385	0.116
Totals.....	352.	92.39	25.02	123.58	13.55	83.7	13.67	3.995	0.885	2.096
Left unconsumed.....	45.	7.87	0.59	18.82	0.35	14.8	2.26	0.095	0.081	0.198
Balance taken into system.....	307.	84.52	24.43	104.76	13.20	68.9	11.41	3.900	0.804	1.898
Water drank.....	577.	577.00	.....	.....	.....	.....	.....	.....	.....	.....
Total water in ration.....	.....	661.52	.....	.....	.....	.....	.....	.....	.....	.....
Manure, solid and liquid.....	462.	381.15	.....	.....	.....	.....	10.16	2.079	0.508	0.554

Now from those tables we may learn several important lessons. Table II. shows that during the first period the animal consumed daily twenty-three pounds of food containing seventeen and one half pounds of water-free substance; in the second period he consumed daily twenty-eight pounds, containing of water-free substance twenty and one fifth pounds; but when we look at the column showing pounds of dry substance per pound of gain, the figures are reversed, and the second period is the more profitable, requiring but 5.5 pounds against 8.7 pounds in the first period.

Another point well illustrated in the same table is the per cent of water required by an animal. It must be remembered that this experiment was in hot weather, and that the demand for water was probably as great as at any season of the year. Calling the total substance taken into the system 100, and we find in the first period that of this 75.7 parts were water, and 24.3 dry substance; in the second period, 73.6 water, and 26.4 dry substance. Lawes and Gilbert lay down the rule that oxen require in every 100 pounds of food and drink, 80 pounds of water, and 20 pounds of dry substance. In either case we can readily see why animals drink so little when fed on ensilage, which usually contains from 78 to 82 per cent of water.

Table III. is important as showing what proportion of the plant food or ash of the food appears in the manure, and there are some rather difficult matters to explain in this table. In the first period it appears that the whole of the ash of the food appeared in the manure, and in fact a little more, which might and probably was due to error of analysis or of sampling; but when we come to the nitrogen, phosphoric acid, and potash, we find a very different state of affairs. The following re-statement shows the per cent of total plant food known to have gone into the system which came out in the solid and liquid manure:

NITROGEN, PHOSPHORIC ACID, AND POTASH RECOVERED IN THE MANURE.

	1st Period.	2d Period.	Average.
Nitrogen	65 per cent.	53 per cent.	59 per cent.
Phosphoric acid	65 “	63 “	64 “
Potash	33 “	29 “	31 “
Total ash	104 (?) “	89 “	96 “

Of course in a growing animal nitrogen is stored up in the increase of live weight, and so also is phosphoric acid ; but it is very difficult to see where sixty-nine per cent of the potash could have disappeared, for the potash should suffer the least loss, as it is stored up in the system in very limited quantities ; but such appears to have been the case. On the whole, it would appear that less than one half of the plant food in the ash of the fodder appeared in the ash of the manure, and but little more than one half of the nitrogen, so that the figures sometimes given to show the value of the manure from a given food may be misleading.

Another fact gathered from the evidence furnished by these tables is the amount of manure produced from a given amount of food. If we reduce the total food to dry substance, that is, subtract from the food consumed the amount of water contained in it, we shall find that in the first period 17.5 pounds daily produced forty pounds of manure, including the urine (Table II.). The second period 20.2 pounds of dry substance produced forty-two pounds of manure, or

Period I., 100 lbs. dry substance produced	228 lbs. manure.
Period II., 100 " " " "	208 "
Average	218 lbs. manure.

The following results represent the investigations of three noted agricultural chemists on this same factor :

Lecouteux, 100 lbs. dry substance produced	250 lbs. manure.
Thaer, 100 " " " "	230 "
Boussingault, 100 " " " "	210 "
Average	230 lbs. manure.

Returning now to our ration of straw and hay required to maintain an ox of 1,500 pounds' live weight, and we see that he would consume in one year 8,475 pounds of dry substance, and using our factor of 218 we should expect to get 18,475 pounds of manure if all liquids were saved. Just what the weight of a "cord" of manure is no one knows, like the famous "piece of chalk." A cord of manure is a very uncertain quantity. Gregory says : "A cord of average stable manure will average in weight about 4,500 pounds." (Pamphlet on Fertilizers, page 8.)

Waring says : "As stable manure in towns is usually sold by

the cord, I have caused a well-trodden cart-load of good livery-stable manure to be carefully weighed, and I find a cord of this manure to weigh 7,080 pounds." (Book of the Farm, page 165.)

I am fully prepared to accept Waring's figures on the manure from neat stock, and Gregory's on horse manure. Our theoretical ox, then, would produce 2.6 cords of manure from 4.9 tons of hay and straw, or one cord of manure from 1.65 tons of food in its natural state.

The manure from the above feeding experiment, the analysis of which is given in Table I., would contain in one ton and one cord the following amount of plant food :

	Pounds per ton.	Per cord of 3½ tons.	Per cord of the manure from ox fed on straw and hay.
Nitrogen	9	31.5	24
Phosphoric acid	2.2	7.7	9
Potash	2.5	8.7	44
Totals	13.7	47.9	77

The last column shows the plant food that would be in a "cord" of manure made by an ox on the hay and straw diet spoken of previously, and with the exception of the potash the similarity is very striking, but it still remains unsatisfactory with reference to the potash.

I have recently had six samples of manure analyzed by Mr. Allen Hazen, a graduate of the Agricultural College, with the following results per ton. (The result per cord can be readily figured by multiplying by 3½.)

SAMPLE.						Water.	Nitrogen.	Phosphoric acid.	Potash.
						Lbs.	Lbs.	Lbs.	Lbs.
1	.	.	.	.	.	1,661	7.2	1.11	2.24
2	.	.	.	.	.	1,668	9.2	2.66	4.14
3	.	.	.	.	.	1,656	8.8	4.00	3.22
4	.	.	.	.	.	1,653	8.3	4.32	3.28
5	.	.	.	.	.	1,664	9.8	3.32	3.26
6	.	.	.	.	.	1,662	9.0	3.58	3.38
Average						1,660	9.0	3.57	3.45

These results show us that farmyard manure is in no sense the extremely rich source of plant food which we are apt to consider it, and they also tell us why we must apply such large quantities to get beneficial results. Now, when we are convinced that the supply of farmyard manure is inadequate to the demands of our farms, and we have decided to buy the elements of fertility in some form, we are at once met by the question, Where can we buy best? Commercial fertilizers, so called, have all sprung from the use of bone, first raw, afterward cut up with acid; then some material was thought necessary to furnish potash, and wood ashes were used; next, nitrogen became desirable, and either nitrate of soda, or sulphate of ammonia, or the nitrogenous guanos were used, until to-day we have a sort of standard fertilizer, varying very little among the best manufacturers, and having about the following chemical composition: Nitrogen, 3.08 per cent; phosphoric acid, 11.76 per cent; potash, 2.80 per cent. These results are got by averaging the following ten fertilizers: Bowker's, Crocker's, Chittenden's, Bradley's, Mapes, Soluble Pacific Guano, Bay State Fertilizer, Stockbridge, Cumberland, and Bay State Phosphate. Of course the value of a fertilizer depends upon two factors: first, the source of the plant food (whether or not it is available); second, the proportion in which the plant food exists.

If we take the analysis of farmyard manure already given, it will appear that the ratio between nitrogen, phosphoric acid, and potash in 100 of total plant food is about

Nitrogen	.	.	.	.	.	.	.	.	.	63 per cent.
Phosphoric acid	.	.	.	.	.	.	.	.	.	17 "
Potash	.	.	.	.	.	.	.	.	.	20 "

If we take the analysis of plants, which certainly ought to show us what they use, at least, and may, perhaps, indicate what they need, we shall see that the ratio between phosphoric acid and potash is as follows:

	Potash.	Phosphoric acid.
Ensilage corn (raised on college farm)	78	22
Northern corn	73	27
Hay	81.6	18.4
Manure produced	54	46
Average of ten fertilizers.	20	80

Now in actual field practice I have used a standard mixture of dissolved bone-black, 325 pounds; muriate of potash, 100 pounds; sulphate of ammonia, 75 pounds, giving an analysis of nitrogen, 3 per cent; phosphoric acid, 10 per cent; potash, 10 per cent, making the proportion of the latter constituents very nearly like farmyard manure, and in comparative trials side by side I have got the following results per dollar invested in the fertilizers:

1882.	Prepared fertilizers returned per \$1 used	\$1.50
1882.	Chemicals (side by side)	2.90
1884.	Prepared fertilizers	1.64
1884.	Chemicals	2.74
1884.	Prepared fertilizers (reported by Stanton in State Grange Report, 1884)	1.56
1884.	Chemicals (reported by Stanton in State Grange Re- port, 1884)	3.36

I am satisfied that we need more potash, and yet our fertilizer manufacturers tell us we do not, but our soil tells us we do. Our farmers can each test this matter by buying dissolved bone-black to furnish phosphoric acid, muriate of potash to furnish potash, and sulphate of ammonia to furnish nitrogen, and they can mix them in varying proportions to see the effect. Ten per cent of potash is none too much in a fertilizer for New Hampshire, and fifteen per cent is nearer the truth.

A TALK ABOUT GRASSES.*

BY A. W. CHEEVER.

FOURTEEN years ago this month the then best informed and most popular lecturer and writer upon dairy matters in the United States, the late X. A. Willard, of Herkimer county, N. Y., in a lecture delivered before the Vermont Dairymen's Association, told his hearers that there was a market in New York, Philadelphia, and other cities, for butter at one dollar per pound. He also quoted, with his indorsement, from a correspondent of the "New York Tribune," who had stated that there were 5,000 families in New York city who would not consider seventy-five cents per pound a high price for all the butter needed for their consumption if the quality desired could be obtained. He also quoted from Col. George E. Waring, who wrote in one of his "Ogden Farm" papers that "There need be no fear of overstocking the market with really 'gilt-edge' butter. It will always be scarce and high. Mr. Sargent, of Brookline, at whose feet I sit in dairy matters, sells his entire product to Hovey, my customer, for \$1.15 per pound, and Hovey sells it for \$1.25. I hope in time to equal him." Col. Waring at that time had contracted with Mr. Hovey to take a limited quantity of "Ogden Farm" butter at seventy-five cents per pound, with an expectation of higher prices. A year later Mr. Willard, speaking before the same association, again took a hopeful view of the situation and prospects of the American dairymen, from the fact that, as New York was the chief dairy State and her farms were being

* Paper read by A. W. Cheever, editor of "New England Farmer," before the Farmers' Club at Walpole, N. H.

rapidly changed to milk, truck, and hay farms, the manufacture of butter and cheese must decrease, and the prices consequently advance. He also alluded to the comparatively limited extent of land adapted to the dairy, in soil, water, and climate, all seeming to foretell a sound, healthy condition of dairying as a business at prevailing prices, with prospect of an advance rather than a decline. Quoting from statistics, he showed that on the cheap lands of Illinois milk could not be made for less than twelve and one half cents per gallon in summer and eighteen cents in winter, and in New York and the New England States the cost must be much higher, consequently cheese must sell at fourteen cents and butter at twenty-six cents per pound to pay expenses. Mr. Harris Lewis at the same convention said: "There is no danger of the dairy business being overdone if sufficient care is practiced." Good running water, he said, was absolutely necessary for butter and cheese making. To Mr. Lewis the idea of making good butter in a country where water was pumped from wells was absurd. Mr. T. S. Gould, secretary of the Connecticut Board of Agriculture, at the same meeting, spoke of the dairy region as limited to a comparatively narrow belt, and to those sections abounding in good grasses, during the season, good running water, good temperature, and a careful, intelligent, and industrious people. The farmers attending the dairy meetings of those years were led to believe that matters had set a limit to the dairy region; that New England and a narrow strip extending but a little way west of New York comprised the territory wherein most of the high-grade dairy products of the country must always be had; and that with a little more care, they could hold the monopoly in this department, and obtain about such prices as their consciences would allow them to ask. Dollar-a-pound butter became one of the stock topics for discussion by politicians, when called upon to make cattle-show speeches to farmers. "You cannot compete," they said, "with the West in raising wheat or corn, nor in fattening beef, but if you will stock up with Jersey cows and make as good butter as Sargent or Waring makes, you can get a dollar a pound in a market that can never be overstocked. You can get rich and be independent." But in 1876 at the Centennial Exhibition in Philadelphia,

Mr. Willard and the rest of us, who had been having great expectations, saw a Western State outside the "dairy belt" take the honors in the dairy department. The farmers of Iowa, many of them born and reared in New England, did not believe in this narrow belt theory; they had faith in good water pumped from wells. They had faith, too, in good corn stalks (poorly husked), and they quietly went to work to beat us, and succeeded, and now the creamery butter of the West is bringing the highest quoted prices and has made sorry inroads into the fancy butter trade of our Eastern cities. As a matter of fact, the amount of dollar-a-pound butter sold in all our cities has never equaled a drop in the bucket compared with the amount sold at regular quotations. Mr. Sargent's sales were often less than a dozen pounds per week, while the few other famous dairies could find a market for but a very limited quantity. There are a few farmers who still obtain prices considerably above the highest quotations, ranging from sixty to seventy cents per pound, but not one could double his supply without breaking his market.

And now the question arises, What are we going to do about it? I see but one answer. Cheapen the cost of production by adopting a better system of farming. How to farm better is a question broad enough to occupy a full course of lectures, or the attention of a farmers' club for an entire winter. It is not in agriculture alone that the profits must be obtained by the observance of little economies and small savings. Economy in production must be observed in all departments of industry, and is practiced wherever success is attained. We must grow fewer weeds in our fields, fewer bushes in our pastures, and more grass in our meadows. We must not pay interest and taxes on so much unproductive farm land. The average hay crop of the country scarcely exceeds one ton to the acre, while it requires four times as many acres as it should to pasture a cow. No farmer should feel satisfied with less than two tons of hay per acre, per year, nor with a good pasture that in a good season will not produce feed enough to summer a cow per acre, with the addition of a little grain once or twice a day.

By the best estimate I can make from the last census reports, the farms of New Hampshire average about 116 acres of improved

land each, and keep an equivalent of six cows per farm, or one cow to nineteen acres. The value of these farms is \$75,-750,000, or an average of \$2,356 per farm. The value of the live stock per farm is about \$300, and the tools and farm machinery average a value of a fraction over \$100, making the farmer's total capital in round numbers, \$2,760. The total annual income of this 116-acre farm, including all that is sold or consumed, is \$421, equal to a little over fifteen per cent on the capital invested, and out of which the farmer and his family must live and pay running expenses. It may interest some to learn that the expense for fertilizers per farm the last census year was only five dollars.

I must confess I do not quite like the looks of some of these figures. At six per cent it will take more than one third of the annual productions to pay the interest, leaving only about \$256 to support the family and make payments on the debt, in case the farm was purchased on credit.

If the profits on farming in New Hampshire are fairly shown by the census returns they certainly offer little encouragement to the average man to run in debt for his farm; yet, if one has his farm by inheritance or marriage, as many do, I can see how he can live on an income of \$421. Many laboring men in our cities find their annual income quite as small.

But what I most dislike in this view of an average New Hampshire farm is the small income per acre, only \$3.63, equal to only about a third of a ton of hay at \$11 per ton. To obtain this the farmer and his hired man, if he has one, have had to travel over too many acres, and too often the hired man is the only person on the farm that appears to have anything left to show for the year's labors.

Another bad feature in the showing is, that as there are many very excellent farmers in the State, who harvest large crops and make large profits, far above the average, there must be many poor fellows who are working for still smaller returns than our figures show. You have large farms in the State that are very productive, and small ones, too; you have much good land that will produce hay and pasture feed equal in quality and quantity to the product of any land in the country; and when you will

make all your good land produce as well as the land of your best farmers you can compete with the farmers of any section, and ask favors of none.

What you need to do is to contrive to get two tons of good hay upon each and every acre of good grass land mown, because it costs no more to drive the mowing machine and the horse rake over an acre for two tons than for one ton. The profits from farming, like the profits from all other kinds of business, come from the surplus products after paying the running expenses. You know that this is true in feeding pigs, calves, colts, and dairy cows; it is equally true in feeding the crops in the corn field and the mowing lot. Better farming is called for. The old system of farming has reduced the productive capacity of our farms. We have been selling land by the quart or bushel and taking our principal to pay our annual dividends, an arrangement that sooner or later must always bring disaster, whether the business be railroading, manufacturing, or farming. It is quite time for New England farmers to adopt a better system of agriculture. We should so manage our farms as to get the most possible out of them and still leave them in better condition for our children or those who come after us than when they came into our hands.

How to do this opens a broad subject. It includes clearing from rocks, proper fencing, the erection of suitable buildings, the selection and care of live stock, and the choosing of crops to be grown. I purpose to ask your attention at this time especially to the selection and culture of grasses.

Grasses are the most universally diffused of any of the flowering plants, extending to all portions of the globe, even where the earth is bare of snow only for a few weeks in the year. The grass family includes our Indian corn and all of our small grains, but not the clovers, though as farmers we very properly call clover a grass, which it is in the agricultural use of the term.

Agriculturally, it is as proper to speak of clover hay as it is of timothy hay, or swamp or marsh hay, which may be largely composed of sedges or rushes. Nearly all our grasses have hollow stems except at the joints, which are solid. Indian corn is an exception, its stalk being solid throughout. The leaves of grass

have a fixed arrangement, one only appearing at each node or joint, and they are placed alternately on opposite sides of the stem so that the third leaf is always directly over the first and the fourth directly over the second. The leaf consists of the sheaf surrounding the stem and the blade.

Sedges are distinguished from the true grasses by their solid sheaths, and also by the arrangement of the leaves, each of which occurs one third of the way round the stem, above or below its neighbor, instead of half way round as in the grasses. The stems of sedges are usually solid, like our corn stalks, but many of them are triangular in shape. Of all the cultivated grasses probably timothy or herd's-grass (*Phleum pratense*) is the best known. It is the favorite variety with stable keepers and nearly all horse owners. The seed is always easily obtainable in market and the cost of seeding land to timothy is less than with most other grasses, which fact, together with its wide popularity in the city markets, has made it a general favorite with the great mass of cultivators. Yet, numerous analyses show that timothy is inferior to some other grasses in nutritive constituents and many dairymen and cattle feeders have learned by experience that it is not the favorite of the animals they feed. Compared with many other grasses it is short-lived in both mowing and pasture. In pastures it is easily pulled up by cattle when feeding, and in mowings it is often destroyed by too close cutting. Under extra favorable conditions it may last many years and produce a fair second crop either for the scythe or late pasturage. I believe that the farmers of New England would find it to their advantage to make the acquaintance of a number of other grasses instead of adhering so closely to timothy. My advice is, raise less hay to sell and more to feed to your own animals, and thus keep the fertility of the farm increasing rather than diminishing. I suppose the average price of hay in New Hampshire barns is not far from \$10 per ton, while in Boston market it retails at nearly double that price. Some of the best farmers of Eastern Massachusetts think they can afford to feed hay to their stock at the high price. If they can, I can hardly see how the farmers of New England can afford to sell hay at half the price.

The book-keeping farmers of Maine have demonstrated the fact

that they can get twenty dollars per ton for their hay at home fed to dairy cows, while if sold it would net them but little over ten dollars per ton. For home feeding, redtop (*Agrostis vulgaris*) should be grown far more extensively than it ever has been, especially in Northern New England. I find some farmers never sow the seed, while not a few are entirely unfamiliar with the grass. Redtop is a finer, softer grass than timothy, a few days later in ripening, and not as quickly injured by standing uncut too long. The seed is abundant in market, and is not expensive. On moist, rich land redtop will make as heavy a crop as timothy, while on dry land it will exceed it. Analysis makes it a richer hay than timothy, and cattle and other animals generally prefer it. It, however, seldom makes a rowen crop that is worth cutting, and for this reason it is most valuable to grow on land to be mown but once a year.

Poa pratensis, June grass. Not a little misunderstanding exists in the community regarding June grass. It is applied in different localities to quite a number of different grasses which bloom in the month of June, or which are fit to be cut before the beginning of the main hay harvest. Sweet-scented vernal grass (*Anthoxanthum odoratum*), whitetop (*Danthonia spicata*), and spear grass (*Poa pratensis*) are the most common species to which the term is applied in New England. Sweet-scented vernal is a variety that is easily identified by the peculiar odor of the leaves and stems, both in the green and dry state. It is the earliest grass of value to bloom in the spring, being sometimes found in bloom in Massachusetts the latter part of May. It is this grass that imparts to some of our meadows in winter, and to the breath of our cattle at pasture in summer, the fragrance so well known to farmers, as well as to the poets who sing of the "new mown hay." It is the grass that the Penobscot Indians weave into tiny fancy baskets, to give them the perfume so attractive to visitors at Bar Harbor and other "down east" summer resorts. It is not a specially valuable grass, though it makes quite a growth of "after-feed" late in summer. It usually grows in tufts, and in this way may readily be distinguished from *Poa pratensis*, or spear grass.

Danthonia spicata, commonly known as whitetop, also as wild

oat-grass, and old-fog, is one of the least valuable of our common June grasses. If cut early in June, cattle will eat it, but if it stands till the later grasses are grown, it is as worthless as the ripe grain straw, besides being exceedingly difficult to cut with scythe or mowing machine.

A peculiarity of this whitetop grass is in its double or triple methods of seeding, producing seeds at the top like other grasses, and also within the leaf sheath of the stem, and in the folds of the radical leaves near the root. On account of this prolificacy whitetop has rapidly increased in some portions of Vermont, particularly in permanent pastures, to the injury if not to the extinction of better varieties.

Spear grass is one of the common names of *Poa pratensis*, and is our most abundant June grass. It is identical with the famed blue-grass of Kentucky, which many suppose will only thrive in that State or upon limestone soils. It is one of the most common roadside, dooryard, and pasture grasses, and is found over a larger area than almost any other grass known. Everybody sees it, and everybody treads it under foot, though not every one knows it by name. It has spread rapidly over the country, because being earlier than timothy or redtop, with which it is often found, the seeds mature and get planted, either by falling to the ground at the roots of the parent plant, or wherever the manure may be dropped by cattle consuming it. When early and late grasses are grown together in mowing fields, the earlier varieties are the ones that hold their places and finally take complete possession of the soil. Many farmers are thoughtlessly re-seeding their meadows every year by leaving them uncut till the early varieties have ripened and shed their seeds. *Poa pratensis* is a valuable grass to sow with orchard grass to thicken the sod and fill up all spaces that would otherwise remain vacant. It has acquired a bad name in New England, because coming almost entirely from self-sown seed, and not getting well established until the fertility of the soil was pretty nearly exhausted by the growth of other cultivated grasses, few ever see it except under rather unfavorable conditions, but I have grown as heavy a crop of it as of any variety I ever cultivated. My heaviest crop was on a reclaimed meadow, where it was sown with orchard grass, and

when the latter was killed out in an unfavorable winter. The second or third year from seeding, it was as handsome a field of grass as I ever saw, standing fully three feet high, and thick enough for more than two tons per acre.

June grass, like orchard grass, is specially valuable for its abundant leaf growth after the first cutting. It is one of the best, as well as most common, pasture grasses, and is scarcely excelled by any as a lawn grass, its dark green leaves producing the "velvety" turf so greatly admired in a lawn. But I cannot recommend it in place of timothy or redtop for ordinary mowings, nor to be sown with them. It is longer in getting established after sowing, and might run a farmer in debt the first year while other grasses would be paying a profit.

Dactylis glomerata, orchard grass. I am sorry that the character of orchard grass is not better understood. Its failings are said to be its habits of growing in tufts, and making few seed stalks, which are hard and woody; also, that when once introduced it is hard to eradicate. Other charges might be brought against it which would have equal weight in the minds of those who have learned its true value. It is not sure to live if sown late in autumn. It comes in bloom and is ready to harvest just when many farmers are busy with their hoeing and planting, and before the mowing machine has been taken from its winter quarters. The seed costs more than the seed of some other varieties. It will not live and thrive in the bottom of a pond, nor produce heavy crops on dry barren knolls. It is exhausting to the soil. I am ready to accept all these charges as true, yet I consider it one of the most valuable varieties of grass found in the United States. It grows in tufts only when sown too thin, or where there are no other equally strong growing varieties to fill up the spaces between the scattering plants. Many other valuable grasses will grow in tufts under like conditions. When a field of orchard grass is not more than half seeded, or is exhausted by repeated cropping, year after year, the blossom stalks are likely to thin, and the same is true of all other grasses of which we have any practical knowledge. An exhausted field of timothy will run up thin, and what seed stalks there are will usually be shorter than those of orchard grass. So will timothy stems be hard and woody if allowed to stand till they are over-ripe.

Orchard grass is the earliest of our large yielding varieties, and, like all early grasses, when left to ripen sheds its seeds early, which, falling to the ground, germinate and thus the grass retains a hold upon the field. Orchard grass is difficult to eradicate just as are nearly all varieties which shed their seeds before the farmer is ready to begin his haying. A field of orchard grass is just as easy to kill by cultivation as is a field of timothy or clover. It is not like witch grass in this regard at all. It is not hardy when very young if sown late in autumn. The same is true of red clover. Both are ready to cut early in June, and if one raises a crop of either and then neglects to harvest it when ready, it is no fault of the grass. The dry, dead stems of none of our grasses make very nourishing food for stock. The seed is dearer than some other kinds, chiefly because of the smaller demand. It is much cheaper now than years ago when it was less known and less called for. But a field once well seeded, if well treated, will last many years. It will not live long under ice in winter, nor will it produce great crops on dry gravelly knolls. It exhausts the land just as does every heavy crop removed from the land. In no other sense is it exhausting. Its chief merit is in its habit of continuous growth through the entire season. It is among the first to start in spring and the last to cease growing in the fall, making it specially valuable for pasture, and for mowings that will produce two crops per year. The leaf growth, aside from that upon the seed stalks, is the most valuable portion, as is true of several other early maturing grasses. The first crop, if cut in season, makes good hay, but the glory of this grass is in its rowen crop. I have repeatedly known it to make the growth of an inch a day for a month, the broad heavy leaves, two and a half feet in length, lying so closely that unless cut at the end of four or five weeks the growth would begin to decay at the bottom for the want of air and sunshine.

Hay made of such grass, cut and cured properly, is the perfection of dairy-cow fodder. To grow it at its best, select a moist but not wet field; let it be made clean from weeds and weed seeds by a year of thorough culture in some hoed crop; sow in spring as early as the land can be well worked, or, better, the last half of July or first week in August, no later, and with no

grain crop to interfere. Put on two bushels of seed per acre and a bushel of Kentucky blue-grass with a few pounds of clover. Harrow the seed in lightly and follow with a heavy roller. If sown in spring the field will require cutting once at least the first year, but do not cut very late, as there should be a pretty good growth left uncut to protect the plants the first winter. Be prepared the following year to begin haying as early as the middle of June, and expect two crops as heavy as can easily be made on the ground. Top-dress with fine manure, well bushed down, as soon as the second crop is taken off, or with commercial fertilizer in the spring after the grass starts to grow. Repeat the manuring every year without fail, and unless some accident befalls, as an attack of worms, two heavier crops can be cut annually than from any other seeding that I have ever tried. I have been asked, "If orchard grass is so valuable, why not raise it exclusively?" The answer is, because one would not want the entire hay harvest on a large farm to come all at once, certainly not by the middle of June. I believe in planning to have grass or other forage to cut as nearly all summer as possible. My own hay harvest usually began early in May and closed in November. My first crop was rye sown the previous fall, the last, barley sown in August.

Alopecurus pratensis, meadow foxtail, is another early grass particularly valuable for sowing in the moist portions of our permanent pastures. Like orchard grass and June grass, its leaf growth, which is continuous through the entire summer, is what makes it specially valuable above many other varieties. It is not a common grass in New England, but I believe should be better known.

Festuca elatior, tall fescue, is a valuable early grass, adapted to moist uplands whether mowing or pasture. As it ripens and sheds its seeds early, it is apt to stay when once introduced. Like orchard grass and June grass, it makes a heavy second growth of leafy rowen hay, or late fall feed. It would not be out of place sown with orchard grass or early mowing or for permanent pasture. It is a common roadside grass in many sections. Tall fescue so nearly resembles meadow fescue (*Festuca pratensis*) that the two are often confounded, if indeed they are not one and the same.

Agropyrum repens, witch grass, formerly *Triticum repens*, also called quack grass, dog grass, and many other names, a rank-growing species somewhat resembling wheat in appearance, is a grass that has some strong defenders, but more bitter enemies. It is a good grass for one to brag about who has it all over his premises and knows of no way to get rid of it. It spreads from seed, but chiefly from its underground, jointed root stocks, which can send up sprouts from every joint, and the joints are only two or three inches apart. It likes good land, and will travel to find it. When a witch grass sod is turned with the plow by ordinary methods, the land is soon green again, as though it had been untouched, the grass often growing even more thriftily for the stirring it has had. In a damp orchard, in the kitchen garden among bushes and small fruits, in the lawn, in the borders of fields surrounded by stone walls, and by the roadside, if it once gets a good foothold, it is pretty sure to stay. In the open, dry field, it is easily killed if judiciously handled at proper seasons. A densely shady crop, heavily manured, will weaken the grass very much, if it does not entirely clean it out in a single season. Corn, cabbage, and Hungarian millet are good crops with which to suffocate it. Plowing deeply in mid-summer, being careful to put the sod all at the bottom of the furrow, and then harrowing the surface every few days with a harrow that will cut off every living leaf, will usually kill it. I have cleared it from a garden by careful spading-fork culture, taking pains to shake out the roots, leaving them on the surface to dry. It has been claimed that this grass would be valuable for a permanent pasture, but it will neither bear the close feeding nor the hard tramping of cattle without soon losing its apparent vigor. It grows best where it is least wanted.

There is another blue-grass besides the Kentucky blue-grass, *Poa compressa*, also called wire grass and flat-stalked grass. It starts early in spring, and yet is a late-growing variety, often producing seed stems very late in the autumn. It can be distinguished from all other grasses by its flat stem, which cannot be rolled between the thumb and finger like other grasses. It is most often seen on dry knolls, where few other varieties would thrive, and for such places, if for no others, its growth and acquaintance should be cultivated.

There are said to be about 6,000 species of grass known to botany, but it is quite an undertaking to find much over 100 in any State in New England. Of these, only three — timothy, redtop and clover — are extensively grown by cultivation, and it is probable that these are the best that could be selected for cultivation in the ordinary system of rotating crops. They have certainly stood the test of many years' trial, and have lost none of their popularity. But there are other species which should be better known, and especially those which are adapted to permanent mowing and pasture. Many of these are found growing more or less abundantly in swales and pastures where the soil was never disturbed by plow or cultivator. The fact that these old wild grasses, as we sometimes term them, are able to hold their places, generation after generation, where our cultivated grasses would soon fail, is a strong argument in their favor, and leads us to inquire if it would not be wise for us to learn to know the best of them and to encourage their growth. Among these unplanted varieties is *Poa serotina*, fowl meadow, false redtop, a grass much resembling common redtop. It is found most frequently in meadows bordering streams, the seeds doubtless being disseminated by overflowing waters. It is finer than common redtop and retains its green succulent condition even after the seed is ripe, making it a specially valuable grass for farmers who are ever behindhand with their work. The seed is found in our markets in limited quantity but sufficient to enable those having suitable land to give it a trial. I have seen most successful experiments with it upon partially reclaimed meadows.

Deyeuxia canadensis, blue joint grass, small reed grass, formerly known as *Calamagrostis canadensis*, is a worthy grass to be encouraged in wet meadows. It grows from four to five feet high, has considerable leaf growth, is nutritious, and is eaten with a relish by all kinds of stock.

Phalaris arundinacea, reed canary grass, is a coarser and taller meadow grass that will grow where the soil is nearly saturated with water, and will produce very heavy crops. Botanists say this grass is identical with the ribbon grass of our gardens, a statement I am unable to deny. Opinions differ widely regarding its value for hay, which depends very much, probably, upon the time

of cutting and the way in which it is cured. Chemists find it very nutritious if cut in the bud.

There are thousands of acres of low swale or marsh lands that are now producing only inferior varieties of grass, or sedge, which might be greatly improved by sowing the seeds of these better kinds. Children can be easily taught to distinguish the valuable varieties, and could earn good wages saving the seed at the proper time for gathering. Many of these grasses, if introduced upon the upper portions of swales, would in a few years spread over large tracts, the seed being naturally carried down stream in times of high water.

Many pastures might be greatly improved by scattering the seeds of the better varieties of our native grasses over them early in the fall, and if the surface could be scarrified with a fine-toothed harrow at the same time, and some fertilizer applied, success would be almost assured.

TIME TO SEED.

It is possible for grass to do well from seed sown any month or day in the year. Yet all seasons are not equally favorable. Nature plants the grasses chiefly in the late summer or early autumn, soon after the seeds are matured, and under favorable conditions the seeds germinate and the young plants make considerable growth the same fall. Clover seed left to nature's care is protected by its covering of husk from germinating till the following spring. We are not required, however, to follow nature closely in all our agricultural operations, but it is well to observe her so closely as to have a clear understanding of her methods, that we may sufficiently conform to them, and thus secure desired results. Some of our grasses are so hardy that they will live through the winter under favorable conditions, even if the seeds have scarcely more than germinated. Cold alone will rarely kill young timothy or redtop, yet if sown where the ground is exposed to alternate freezing and thawing, so that the plants are pulled up and left with their roots exposed upon the surface to freezing and drying, they will most surely perish.

Were it not for the depredations of grasshoppers and crickets, I should name early autumn as the best time in the whole year

for sowing most varieties of grass seed, the precise time to be determined each year by the condition of the soil and the character of the weather. On rich land too early seeding may give too much growth the first season. Grass roots need the protection of their own leaves, but it will not do to smother the plants under too heavy a mulch of rank leaf growth. The favorable period is from the last of July to the middle of September. If sown later, the ground should be rich, the season favorable, or some kind of grain crop like winter rye put in with it as a protection. Two bushels of rye to the acre with late-sown grass will make a root growth that will help hold the soil together, and a top growth that will tend to keep the sun from thawing the surface when bare of snow. If the rye is cut early the following spring, and used for feeding cattle before the pastures are ready to turn into, it will not materially injure the young grass, but to let grain crops stand to ripen, to be cut in the heat of midsummer, is quite another matter; their later growth shades the grass too much and too long, and makes it grow slender, while the roots of the stronger growing grain seriously exhaust the soil of both moisture and fertility. If grass is the crop most desired, I would never risk sowing it with small grain except under such conditions as I have named. The advisability of seeding in spring with grain will depend upon the relative importance of the crops and the character of the climate. In Northern New England, where the seasons are comparatively short and cool, and where the spring-sown grain is not cut till quite late in the fall, spring seeding is usually safe; but in Massachusetts and farther south, where the grain is cut during the heat of midsummer, the risk is very great, and our best farmers are gradually abandoning the practice. Some who have tried spring seeding without grain have found their land so foul with annual weeds that the grass has had quite as hard a chance with weeds as it would have had with grain, so they have gone back to seeding with grain, or more generally have given up spring seeding entirely. Were our tillage lands free from weed seeds there would be little difficulty in getting a good "catch" by spring seeding, but as most lands are, it is quite otherwise. Most of our troublesome weeds are annuals that start early, grow fast and strong, and easily overshadow and overpower

the tiny grass plants. When grass is sown in autumn, the young plants expend their forces in making a strong root growth, and in producing numerous short, stocky, low spreading leaves. Fall-sown grass, like fall-sown rye or wheat, tillers and spreads, but never makes an effort at producing seed stalks the first year. The vigorous fall growth is a storing up of strength for producing stems and seeds the following year.

Timothy is a bulbous biennial much resembling an onion. It is as unnatural for the one to seed the first year as for the other, and we make a mistake when we make the conditions unfavorable to the full development of either. The onion requires, practically, the whole of the first growing season to perfect its bulb, while the timothy plant will do well if it has but the last half of the season. Another illustration may be found in the beet and turnip which make bulbs one season and produce seeds the next. The beet needs most of the summer to make a good bulb, while some varieties of turnip will make it in the fall from August sowing. If we sow beet seed early in spring three or four hundred miles to the south, we may find a large portion of the bulbs throwing up seed stalks the first summer. So if we sow timothy seed in spring in our climate we are giving it unnatural conditions; it finds everything favorable to rapid growth and it will often send up its seed stalks the first summer. But such growth being unnatural the plants are likely to be short-lived. I have seen spring-sown timothy as completely killed by cutting the first summer as if it had been an annual, like oats or barley. Red clover is classed among the biennial plants, as it usually makes no seed the first year, but if we sow the seed early in spring with no stronger growing plants to keep it back it will often bloom and produce seed the first year, and very likely die the first winter. It has been changed from a biennial to an annual. We may well look upon timothy and some of our other valuable meadow grasses as approaching in their character biennial plants, and we will do well to treat them accordingly. Our onion bulbs are taken in and protected under cover in winter, but timothy being somewhat hardier than the onion is left out in the field, yet its bulbs need some protection. It is one of our tenderest grasses, as farmers well know who find it con-

stantly diminishing in their fields, while its place is being filled by less valuable varieties. The best protection is the stubble and leaves left by the machine or scythe when cutting. Close cutting is almost sure death to timothy. A good top-dressing of stable manure is also a good protection and the sooner it is applied after a crop is removed the better it will be for the next crop.

And this leads us to the question of top-dressing mowings. This is a perennial question. Much depends upon conditions and circumstances surrounding each inquirer. Very much depends upon the condition of the sod and the general character of the soil. Moist, stony land that is well covered with grasses of good quality may often be top-dressed with marked economy. Indeed, it may be the only practicable method of treating it. One who owns a large area of such land is quite inclined to believe that top-dressing is the true and about the only method of treating all mowing-fields, while the owner of a dry, sandy plain may count one as foolish who would thus waste manure, as he looks at it.

We are apt to accord to grass more of a perennial character than is its due. A mowing-field, it is true, may remain a good mowing-field ten, forty, or a hundred years, but the individual grass plants may have been many times replaced or renewed, like the ever-changing population of a city or town. Timothy grass actually renews itself every year, not from seed but from offsets at the root, or more strictly at the bulb. Timothy grown upon dry land and cut for hay in a dry period is usually killed outright, and its place taken by other grasses or weeds. On moist land, or in wet seasons, the little offshoots at the base of the old bulb usually take root and are able to support themselves before the parent bulb dies of old age, and thus our meadow is renewed, though it may be not a timothy plant exists that was alive two or three years ago.

Top-dressing helps timothy by adding something to the surface into which the roots of the new bulbs may readily penetrate for their plant food. Top-dressing in this case is like "hilling up" about a tomato plant to encourage roots to push from the stem, or like preparing a loose, rich soil for strawberry runners to root in.

Red clover renews itself only from seed, but white clover from the roots or layers. June grass and witch grass both spread from underground stems. If our grasses were allowed to stand late enough, they would all renew themselves from seed, but good husbandry requires cutting too early for this.

The proposition is conceivable of a timothy meadow kept vigorous and clear from other grasses for a term of years by annual top-dressing, but such meadows, if existing at all, are exceedingly rare. They are not found on dry soils, and timothy is not a natural grass for wet land.

Whoever would attempt to keep a permanent meadow by top-dressing, should select other grasses than timothy for his sod, unless he scatters seed freely with the manure applied. Redtop, or other so-called natural meadow grasses, will be likely to be found in all good mowings that can be kept productive for a long period by the application of manure to the surface. Nature will help us in our selection of varieties, if we will study the character of the grasses found in good mowings that are kept rich and productive by annual flowage in the spring.

TIME TO TOP-DRESS.

I believe the best time to top-dress is the next day after the hay is cut and removed from the field. The manure then acts as a mulch to shade the surface and protect the roots, and also by affording a fresh supply of plant food, which will be washed into the soil by the first shower or rain-storm.

But I would not give much thought to top-dressing except upon such lands as will produce at least two good crops of hay every season. Manure applied just after haying makes the second crop almost an assured fact every year on lands and sod adapted to permanent mowing. The next best time is in the spring just as the grass is starting into vigorous growth, provided the soil is firm enough to cart over at that time, as it will be if it is properly drained.

Manure for top-dressing should either be so thoroughly rotted and fine that it will readily sift down in amongst the stubble, or it should be so soft that a heavy bush, or a smoothing harrow, or

drag, will spread it all down close to the earth. Manure applied in lumps left to dry on the surface is worth very little as top-dressing.

I have never seen better results from top-dressing than when I have drawn out manure fresh from the barn cellar, and so soft that a bush drawn over the ground the same day would apparently leave nothing but a heavy manure stain upon every inch of soil and every spear of grass. The first rain gave the crop a heavy dressing of liquid manure.

I would prefer to give such a dressing twice a year, first in May and next in July, after cutting the first crop; but to save labor, one larger application might be more economical. This method is specially applicable to what we commonly term natural grasses. Timothy might be injured in dry weather by drawing a heavy brush or harrow over the stubble.

Fine manure, even if heavily extended with loam or other soil by composting, might be better for timothy on dry uplands, although I do not advocate top-dressing dry land at all.

Fertilizers for top-dressing present some of the same difficulties which attend the use of stable manure, and a lack of some of its benefits. Fertilizers have no use as a mulch, nor do they add to the amount of the surface soil in which the young surface roots must feed. We find the same tendency of the earlier grasses to take possession of the land and crowd out later and better varieties.

We are apt to speak of mowing-land in this condition as "bound out," which simply means that June grass has filled the soil full of roots, and this grass is not much of a cropper as ordinarily treated.

I know of men owning farms which they have wished to handle at a profit, but with as little labor as possible, who have had the strongest faith in commercial fertilizers, and have used them extensively for top-dressing permanent mowings, or mowings which they had hoped would be permanent, but I have known of no instance where ordinary tillage land has been thus treated without bringing disappointment sooner or later.

"Bound out" — the timothy all gone and June grass in its place — is the common complaint, but a bad winter or white

grubs in summer often bring the experiment to an abrupt termination; and the land must be plowed and re-seeded, either directly, or, what is far better as a rule, after a cultivated crop.

Land long in grass becomes after a while, under the pressure of teams and cart-wheels, too hard and compact for the best growth of the plants. The surface sheds rather than absorbs the showers as they fall, and moisture goes off into the brooks and is lost to the field. There is also, as is claimed, a shutting up of the capillary air spaces through which moisture is brought up from the subsoil in a dry time to sustain surface vegetation. This is undoubtedly true to a considerable extent, as shown by the sensitiveness to drought of a much-trodden pasture or a dooryard walk.

Another objection to continuous top-dressings for mowings, is the growing of one kind of crop continually without rotation, a system which must be attended with more or less waste. We may fill our soil with certain elements of plant food which the grass crop cannot return to us but which would be returned in an occasional crop of clover or roots. This fact must explain in part why so many farmers who have experimented in top-dressing have come to the conclusion that one load of manure worked into the soil is worth two spread upon the surface. They apply only a moderate dressing, for a corn crop, for instance, and after the corn, get a heavier crop of grass than they would have expected had they applied the same amount of manure to the old sod direct.

We hear much said, and properly, too, of the mechanical effect of manure in the soil, but there is little or no mechanical effect to be looked for from surface application on grass. Theoretically, there is no waste by the exposure of manure on the surface, but, practically, I believe there may be. I have spread manure on plowed fields in the autumn and left it exposed all winter, and found the cultivated crops the following summer quite as heavy as where the same amount of manure was applied in the spring immediately before planting. On the other hand, I have spread a top-dressing on grass land in the fall, leaving it in a somewhat lumpy and uneven condition, and have failed to see much benefit from it the summer following, or any time afterwards.

In treating this subject of top-dressing I might have simply stated that, in my own farm practice, top-dressing grass lands had not been attended with satisfactory results. But some one else might have replied and said that top-dressing had always paid him; and he was convinced that it is the true way to raise grass. Then, there would have been simply the opinions of two, looking at a subject from different standpoints. I have endeavored to discover some of the reasons *why* different farmers arrive at opposite conclusions as a result of their several experiments.

My conclusion is, if one has natural grass land, which is too stony to plow and not worth the clearing, this top-dressing *must* be resorted to, for it is the "Hobson's choice"; but if the land is tillable, or can be made so by a reasonable outlay, then apply the manure to cultivated crops and work it into the soil, and get the grass in rotation. If it is thought desirable to top-dress a few times to retain the grass longer, then by all means apply the top-dressing while the valuable grasses are still vigorous, instead of waiting till there is nothing left worth top-dressing; for manure, unless it is well stocked with good grass seed, cannot restore a mowing from which the best varieties are all starved out. Much depends upon conditions and circumstances surrounding each individual, and each must be governed accordingly in practice. We may well remember, however, that principles never change.

AGRICULTURAL FAIRS.

IN addition to a state fair, about the usual number of county, district, and town fairs were held during the autumn of 1886. The agricultural report would very properly contain a brief account of each, but we are able to present in this volume only the reports of the following, furnished by Dr. W. H. H. Mason, member of the Board from Carroll county :

THE STATE GRANGE FAIR AT TILTON.

As delegate of the Board of Agriculture, I attended the Grange fair at Tilton, September 29-30 and October 1. This was the first annual state fair and festival held under the auspices and direction of the Grange, but we hope it was not the last. Every one interested in agricultural fairs has reason for gratitude to this organization for the example set in the manner of conducting this fair. It is doing no injustice to any previous fairs to say that it was the best exhibition of the kind ever held in the State. The grounds were well arranged, and the display of stock, farming tools, agricultural products, and handiwork was of the highest order.

It was a novelty, inasmuch as it was what it purported to be, a strictly agricultural fair, free from the objectionable features of fairs in general. No kinds of intoxicating drinks were allowed on the grounds or environs; no gambling, no horse racing, and no disturbance of any kind. The example set by this exhibition must have a highly favorable effect on future fairs in the State in morals as well as in the farming interest.

The farmers of New Hampshire are under great obligations

to the Grange. They are doing a good work and it is hoped that in conjunction with the Board of Agriculture they will continue to sustain and increase the farming interest. I learn that this exhibition is to be repeated at the same place the coming season. It will be anticipated with great interest by every lover of farming and of wholesome and moral exhibitions. There was a lack in the ability to feed the vast multitude which was the only fault. This, it is expected, will be remedied at the next show.

GRAFTON COUNTY FAIR AT PLYMOUTH.

Agreeably to appointment, I attended the agricultural fair at Plymouth, held September 1, 2, 3, 1886. On entering the grounds, I was pleased to notice the absence of drinking-stands, gambling-tables, and other objectional features which have in many instances been a curse in previous years to New Hampshire agricultural fairs. It is gratifying to know that the cause of temperance has had its favorable effect in these exhibitions, and we have reason to believe that henceforth the evil effect of liquor selling and gambling will be strictly prohibited by the managers of our fairs. I saw no one intoxicated nor any indication that liquor was sold in or around the grounds. There was a very fair exhibition of stock, notably, Short-horns, Devons, and natives, by C. W. Pulsifer, of Campton. Among other exhibitors were C. H. Cutter, of Plymouth; F. C. Cummings, of Holderness; H. H. Bailey & Son, Alexandria; A. H. Cook, of Campton; S. M. Spencer and Edgar Merrill. I have not place here to give particular description of each and can only say that each exhibitor had good specimens, all in good condition. There was no display of high-fed fancy stock, but the show was made up of representative stock from the barns of the farmers in the vicinity. C. Whittemore, A. C. Moulton, and H. H. Bailey made a good show of working cattle. Thornton, Campton, and Rumney sent town-teams, which made a good display. They all looked so well that I did not try to decide which was best. D. W. Gibson, of Plymouth, made a fine display of steers, together with H. H. Bailey, of Alexandria. There was not a large exhibition of agricultural implements. Floral hall was well

filled with the handiwork of the ladies. There was also a good display of grains, fruits, and dairy products. It was a good exhibition and I think gave general satisfaction.

TOWN FAIR AT SANDWICH.

Sandwich got up a town fair upon short notice and under great inconvenience and embarrassment, inasmuch as they had no convenient ground for the display. The people at an early hour began to pour into the Center village until there was hardly room for the immense crowd. Farmers from all parts of the town came with big oxen until they had 150 yoke in line, and would have made a magnificent show if there had been sufficient room. It was very hastily gotten up, but it gave immense satisfaction and shows what Sandwich can and probably will do at some future time. Sandwich is noted for its hay crop, pasturage, big cattle, and general industry. The meeting was addressed by Judge L. D. Mason, Judge Hill, Dr. W. H. H. Mason, Col. Fellows, and Paul Wentworth, Esq.

PATRONS OF HUSBANDRY.

OFFICERS OF THE NEW HAMPSHIRE STATE GRANGE, 1887.

CHARLES MCDANIEL, Springfield, *Master*.
CHARLES N. CLOUGH, Canterbury, *Overseer*.
JOHN D. LYMAN, Exeter, *Lecturer*.
FRANK H. WELD, Cornish, *Steward*.
JAMES E. SHEPARD, New London, *Assistant Steward*.
GEORGE L. DASCOMBE, Wilton, *Chaplain*.
JONATHAN M. TAYLOR, Sanbornton, *Treasurer*.
NAHUM J. BACHELDER, East Andover, *Secretary*.
JAMES M. WILLIAMS, Bath, *Gate-Keeper*.
MRS. CHARLES MCDANIEL, Springfield, *Pomona*.
MRS. OSCAR E. SARGENT, Chesterfield, *Flora*.
MISS ADDIE E. RICE, Henniker, *Ceres*.
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WILLIAM W. BURBANK, Webster, *Secretary*.
ROBERT D. GAY, Manchester.
JOHN W. FARR, Littleton.

LIST OF THE SUBORDINATE GRANGES.

No.	NAME.	LOCATION.	MASTER.	LECTURER.	SECRETARY.
1	Gilman.	Exeter.	John J. Bell.	C. W. Treadwell.	John D. Lyman.
3	Amoskeag.	Manchester.	Adam Dickey.	A. B. Paige.	Benj. J. Mack.
4	Merrimack River.	Canterbury.	Millard F. Emery.	Charles W. Emery.	Mrs. C. W. Emery.
5	Lovell.	Washington.	Wakeman J. Powers.	Miss Ida M. Chapin.	Mrs. Mary J. Chapin.
6	Halestown.	Weare.	Miss Henrietta Clement.	Mrs. J. E. Jones.	Mrs. R. M. Jameson.
7	Granite.	Milford.	William R. Howard.	W. Wells Howard.	George W. Colburn.
8	Sullivan.	Newport.	L. L. Cutts.	George H. Whitney.	George W. Hurd.
9	Claremont.	Claremont.	Erastus Reed.	Mrs. Louisa M. Buckman.	Dudley T. Chase.
10	Souhegan.	Amherst.	A. Milton Wilkins.	C. L. Trow.	Miss Mary F. Hazeltine.
11	Hudson.	Hudson.	William A. Andrews.	George H. Abbott.	Kimball Webster.
12	Hollis.	Hollis.	Charles E. Hardy.	Mrs. Louisa D. Spalding.	James C. Hildreth.
13	Nashua.	Nashua.	Howard E. Priest.	Colman W. Murch.	Albert H. Bailey.
18	Pinnacle.	Lyndeboro'.	J. A. Woodward.	Mrs. E. C. Curtis.	John H. Goodrich.
19	Cold River.	Acworth.	Chester M. Johnson.	Miss Nora M. Allen.	Myron D. Clarke.
20	Advance.	Wilton.	Willis H. Abbott.	A. Dwight Abbott.	Mrs. A. D. Abbott.
21	Prospect.	M't Vernon.	George H. McQuestion.	Miss Susie M. Kendall.	Miss Eunice A. Fox.
23	Greenfield.	Greenfield.	David Starrett.	Mrs. John Fletcher.	Mrs. A. W. Savage.
25	Cornish.	Cornish.	Lemuel Martindale.	Mrs. W. E. Westgate.	Mrs. Albert Weld.
31	Thornton.	Merrimack.	James C. Hodgman.	Mrs. Clara K. Foster.	Miss Clara S. Kittredge.
32	Oak Hill.	Frances'twn.	Henry Richardson.	Mrs. Emma H. Colburn.	George F. Pettee.
33	John Hancock.	Hancock.	Clarence H. Ware.	Miss Lettie W. Goodhue.	George W. Goodhue.
34	Miller.	Temple.	D. C. Bragdon.	Martin H. Fiske.	W. P. Bacon.
35	Peterborough.	Peterboro'.	Albert O. Smith.	George W. Marden.	Miss Jennie S. Marden.
36	Watic.	New Ipswich.	Frank W. Prichard.	C. H. Obear.	Charles A. Preston.
37	Nutfield.	Derry.	Fred H. Bartlett.	Mrs. Lizzie F. Hill.	A. L. Mellen.

39	Bear Hill.	Henniker.	Josiah W. Emery.	James Fellows.	W. H. M. Cate.
40	Uncanoonuc.	Goffstown.	J. G. Taggart.	George P. Hadley.	George B. Stevens.
41	Wolf Hill.	Deering.	George F. Gove.	Miss S. M. Bailey.	Mrs. D. B. Gove.
42	Stark.	Dunbarton.	Thomas W. Kimball.	A. P. Chamberlain.	Mrs. N. H. Barnard.
44	Londonderry.	Londonderry.	Daniel G. Annis.	Miss Mary A. Wiley.	Charles H. Fling.
46	Narragansett.	Bedford.	Edward W. Stevens.	Mrs. N. B. Hull.	Willard C. Parker.
48	Lancaster.	Lancaster.	W. R. Stockwell, Jr.	James Bain.	R. F. Carter.
49	Monroe.	Monroe.	Daniel Sherry.	Hugh Nelson.	R. A. Moore.
50	White Mountain.	Littleton.	William Harriman.	George C. Furber.	Mrs. C. R. Allen.
52	Mount Belknap.	Gilford.	Thomas E. Hunt.	William H. Weeks.	Mrs. T. E. Hunt.
53	Joe English.	New Boston.	Charles S. Colburn.	Mrs. H. D. Gould.	Roger H. Vose.
54	Wyoming.	South We're.	Charles J. Hadley.	Josiah H. Nichols.	Mrs. Ellen A. Gould.
55	Ammonoosuc.	Bath.	M. R. Tewksbury.	J. M. Williams.	Mrs. A. P. Prescott.
56	Union.	Hopkinton.	Herbert M. Kimball.	Mrs. H. M. Kimball.	Mrs. J. M. Connor.
58	Bradford.	Bradford.	Frank O. Melvin.	George I. Rand.	Miss Emma B. Felch.
60	Grafton Star.	Hanover.	C. H. Pettee.	C. W. Scott.	J. M. Fuller.
62	Morning Star.	Lyme.	George S. Mayo.	Bela Sawyer.	John F. Elliott.
63	Valley.	Hillsboro'.	Mark M. Hadley.	William E. Gay.	Edgar Hazen.
65	Crown Point.	Strafford Cor.	Frank B. Yeaton.	Fred T. Stanton.	Charles F. Felker.
68	Mascoma.	Enfield.	Fred G. Richardson.	John C. Currier.	Mrs. Ruth K. Jones.
69	Eureka.	Grafton.	B. Frank Williams.	George S. Barney.	Miss Lizzie A. Fowler.
70	Mont Calm.	Enfield Cen.	Charles McDaniel.	Mrs. Ella R. McElwain.	Allen H. Jackman.
71	Blazing Star.	Danbury.	Ebenezer E. Wells.	Mrs. Almira E. Bullock.	John D. Danforth.
72	Indian River.	Canaan.	C. O. Barney.	Miss Roxie L. Davis.	Miss Dell E. Barney.
74	Deerfield.	Deerfield.	Arthur M. Chase.	Edmund T. Chase.	George H. Stevens.
77	Mount Hope.	Landaff.	John E. Hall.	Mrs. John E. Hall.	W. C. Clark.
79	Olive Branch.	Hebron.	David P. Hardy.	E. K. Follansbee.	Albert E. Moore.
80	Bow Lake.	Strafford.	John O. Boody.	Mrs. L. C. Culchett.	D. S. Woodman.
81	Cochecho.	Dover.	Martin L. Lord.	James M. Hayes.	Mrs. Minnie F. Hayes.
83	Spafford.	Chesterfield.	Herman G. Smith.	John L. Streeter.	Mrs. W. W. Foss.
86	Rochester.	Rochester.	Dudley B. Waldron.	Mrs. Carrie E. Springfield.	I. W. Springfield.

LIST OF THE SUBORDINATE GRANGES (*continued.*)

	NAME.	LOCATION.	MASTER.	LECTURER.	SECRETARY.
87	Kearsage.	Wilmot.	John M. Carr.	Mrs. L. M. Nelson.	A. J. Cheney.
88	Highland Lake.	Andover.	E. B. Merrill.	F. H. Flanders.	Mrs. F. H. Flanders.
90	Warner.	Sutton.	Philip C. Wheeler.	J. R. Cogswell.	Miss Fanny H. Corey.
91	Sutton.	Sutton.	Charles A. Fowler.	Mrs. Lydia M. Putney.	Daniel L. Powers.
93	Campton.	Campton.	Mark Spokesfield.	Thomas S. Pulsifer.	Walter H. Dow.
94	Ezekiel Webster.	Boscawen.	Charles N. Clough.	David F. Dudley.	William P. Abbott.
95	New London.	New London.	Charles W. Gay.	Nathaniel C. Todd.	W. M. Knowlton.
96	Forest.	Stoddard.	Herbert E. Proctor.	William H. Chase.	Charles A. Whittemore.
97	Catamount.	Pittsfield.	Frank E. Cram.	George R. Drake.	Mrs. George R. Drake.
98	Antrim.	Antrim.	Ansel S. Buchanan.	Ira Hutchinson.	George T. Buchanan.
99	Harmony.	Sanbornton.	Alfred H. Colby.	Herbert J. L. Bodwell.	George C. Ward.
100	Daniel Webster.	Webster.	Warren Abbott.	Mrs. Addie M. Hoit.	F. A. Lang.
101	Crystal Lake.	Gilmanton.	John L. Piper.	Thomas Cogswell.	Miss Cora B. Gale.
102	McClary.	Epsom.	James W. Fowler.	Mrs. Jennie Noyes.	Miss Annie Tripp.
103	Monadnock.	Dublin.	Henry D. Learned.	Warren L. Fiske.	Miss Sarah F. Townsend.
104	Bartlett.	Salisbury.	Thomas D. Little.	George E. Fellows.	Andrew E. Quimby.
105	Silver Lake.	Harrisville.	Thomas H. White.	Fred C. Farwell.	Mrs. Mary E. Parker.
106	Fruitdale.	Mason.	Orran A. Hamblett.	George W. Goddard.	Timothy Russell.
107	Pemigewasset.	Hill.	Rev. E. H. Wright.	Silas P. Thompson.	J. W. Favor.
108	Franklin.	Franklin.	Wallace Burleigh.	J. H. Rowell.	George P. Gale.
109	Rumford.	East Concord.	John G. Tallant.	Charles H. Sanborn.	Frank P. Curtis.
110	Friendship.	Northfield.	George R. Locke.	L. F. Batchelder.	Miss Belle W. Gile.
111	Pembroke.	Pembroke.	Joseph H. Dearborn.	Crosby Knox.	Frank W. Stevens.
112	Sunapee Lake.	Newbury.	Fred S. Muzzey.	Mrs. Amanda M. Peaslee.	Nathan B. Bly.
113	Capital.	Concord.	W. W. Critchett.	Rev. A. C. Hardy.	William P. Ballard.

114	Golden Rod.	Swanzy.	Charles H. Rockwood.	Benjamin Read.	Mrs. Annie G. Hills.
115	Granite Lake.	Nelson.	Frederic Taylor.	James H. Scott.	Frank R. Jewett.
116	Mt. Washington.	Whitefield.	James A. Goodwin.	Mrs. James A. Goodwin.	Fred A. Shute.
117	Lawrence.	Belmont.	Isaiah Piper.	Edwin C. Bean.	Joseph B. Mathews.
118	Marlborough.	Marlboro'.	Charles Mason.	Charles H. Thatcher.	Philip F. Peck.
119	Barnstead.	Barnstead.	Horace N. Colbath.	Miss Jennie M. Huse.	Miss Nellie Fletcher.
120	Laconia.	Laconia.	J. Frank Crockett.	Mrs. Augusta P. Sanborn.	Miss Bertha H. Flanders.
121	Loudon Surprise.	Loudon.	Abram Bachelder.	W. W. Cate.	Frank A. Brown.
122	Scammell.	Durham.	W. S. Meserve.	Miss Mary A. Burnham.	Lucian Thompson.

HILLSBOROUGH COUNTY POMONA GRANGE No. 1.

Located in Hillsborough county. Annual meeting, first Tuesday of December at Milford. Quarterly meetings, Tuesdays on or before full moon in March, June, and September. Special meetings are held with the Granges in the county.

Willis H. Abbott, Wilton, Master; Eli C. Curtis, Lyndeborough, Lecturer; Kimball Webster, Hudson, Secretary.

EASTERN NEW HAMPSHIRE POMONA GRANGE No. 2.

Located at Bow Lake, Strafford, for annual meeting. Meets monthly with Subordinate Granges in the jurisdiction, Thursdays on or before full moon, unless otherwise desired by the local Grange. Afternoon sessions are generally public.

George R. Drake, Pittsfield, Master; James M. Hayes, Dover, Lecturer; Dudley B. Waldron, Rochester, Secretary.

MERRIMACK COUNTY POMONA GRANGE No. 3.

Located in Merrimack county. Annual meeting held second Tuesday in December at Concord, where quarterly meetings are held the fourth Tuesdays in March, June, and September. Holds intermediate meetings with the Granges of the county.

Warren Abbott, Webster, Master; H. H. Metcalf, Concord, Lecturer; Walter Sargent, Warner, Secretary.

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Scale of Feet
5000 10000 15000

NEW HAMPSHIRE SOUTHERN BOUNDARY



NDARY - WESTERN SECTION.

Scale of Miles
0 1 2 3 4 5



REPORT OF THE COMMISSIONERS

APPOINTED TO

ASCERTAIN AND ESTABLISH

THE

TRUE JURISDICTIONAL LINE

BETWEEN

MASSACHUSETTS AND NEW HAMPSHIRE

TO THE

NEW HAMPSHIRE LEGISLATURE,

JUNE SESSION, 1887.

MANCHESTER:

JOHN B. CLARKE, PUBLIC PRINTER.

1887.



NEW HAMPSHIRE SOUTHERN BOUNDARY
EASTERN SECTION

SHOWING LINE MARKED BY EXISTING MONUMENTS
AND
LINE THREE MILES FROM RIVER
ALSO

"A SIMILAR CURVE LINE PURSUING THE COURSE OF
THE MERRIMACK RIVER AT THREE MILES
DISTANCE ON THE NORTH SIDE
THEREOF" AS DECREED BY

KING GEORGE II
1740

FROM SURVEYS BY
PROF. E. T. QUIMBY
1886

NOTANDA

- Triangulation points..... Δ
- Churches..... Δ
- Dwellings..... □
- Barns..... □
- Line Monuments..... ○
- Mitchell Line..... —
- Line three miles from river..... —
- Similar curve as decreed..... —
- Roads and town lines from former maps..... —

Scale of Feet

Scale of Miles

REPORT.

To His Excellency, Charles H. Sawyer, Governor of New Hampshire :

The commissioners appointed under a joint resolution approved August 19, 1885, in conjunction with similar commissioners appointed by Massachusetts, "*for the purpose of ascertaining and establishing the true jurisdictional boundary line between the two States,*" in making this their first report, deem it wise to give a brief account of the state of the controversy which they have been appointed to adjust.

For more than a century the proper interpretation of the various grants and charters under which the two Provinces existed had led to continuous disputes about the boundary lines between them, and in the year 1737 fifteen commissioners were appointed by the King in Council to adjust and determine these differences. After some difficulty nine of these commissioners met at Salisbury, Mass., the Legislatures of the two provinces being in session within a mile or two of each other, the one in Salisbury and the other in Hampton Falls. New Hampshire waiving, for the time, any other claim she might have had, proposed a line commencing at the Atlantic Ocean three miles north of the mouth of the Merrimack River, and running thence due west, which would have passed through the present village of Amesbury, Mass., crossed the Merrimack a little south of Reed's Ferry, passed a little north of Monadnock, and south of Keene,

and nearly corresponded with the north line of Chesterfield. Massachusetts proposed in like manner a line following the Merrimack River from its mouth, and everywhere three miles distant from the left bank to the junction of the Pemigewasset and Winnepesaukee rivers, in what is now Franklin, and thence due west, which would have struck the Connecticut River a mile or two south of Windsor, Vt.

The commissioners heard both parties, and agreed upon an award in alternative, leaving the interpretation of the charters to the King in Council, and upon one interpretation deciding in favor of the Massachusetts proposal, and on the other interpretation in favor of the New Hampshire proposal, and giving to each party six weeks in which to make any objection or present any views they might have, to be forwarded with their report to the King in Council. Thereupon Jonathan Belcher, at the time Governor of both Provinces, prorogued the New Hampshire Assembly until the close of the six weeks, and upon their reassembling adjourned the council, to prevent any such objections and views being presented by New Hampshire; while he kept the Massachusetts Assembly open. The commissioners, however, on reassembling waited for the New Hampshire Assembly to prepare their objections, and received them against the protest of Massachusetts and of Gov. Belcher that they were not in season, and had not the concurrence of the Governor and Council. When the papers were returned to England, the King in Council sharply reprimanded Belcher for his partisan conduct in the matter, and no doubt it may have prejudiced the minds of the judges in England against a claim which required such extraordinary means to support it.

The matter was then heard before the King in Council, the highest legal tribunal for the determination of causes in the colonies, and composed principally of the judges in England; a tribunal which the supreme court of the

United States has decided had jurisdiction in a similar case, not only over the parties but over the subject matter, and whose decision as stated by that court would not only be binding as the decision of the highest judicial tribunal, but also as the decree of the political power which had authority to change the existing boundaries of the colonies: so that whether regarded as the decision of the highest court having jurisdiction upon existing rights, or the determination of a political power having authority to change existing rights, its decision was then obligatory on the parties, and finally conclusive upon all pre-existing controversies.

The King in Council, by a decree of the fifth of August, 1740, adjudged and decreed,

“That the Northern Boundaries of the said Province of the Massachusetts Bay, are, and be, a similar Curve line; Pursuing the course of the Merrimack River at three Miles Distance on the North side thereof, beginning at the Atlantic Ocean & Ending at a Point due North of a place (in a plan returned by s'd Commissioners) called Pawtucket Falls, & a strait line drawn from thence due West cross the s^d river till it meet with His Majesties other Governments.

This decree was sent to Gov. Belcher as Governor of Massachusetts, with a letter of instructions, requiring him to have the line run, under penalty of removal from office. Belcher communicated this decree to the Massachusetts Assembly, which adjourned without taking any final action on the matter. Belcher then communicated the decree with the statement (not contained in the decree) that the line was to be run jointly by the two Provinces, but that if either refused the other should proceed *ex parte*; and with the statement that Massachusetts had refused, which was not true, and asked of New Hampshire an appropriation of one thousand pounds for the expenses of the survey. The Assembly replied that it was apparent from the tenor of the King's letter to

Belcher that it was the intention of the King in Council that Massachusetts should pay the expense of the surveys, and several messages passed between the Governor and Assembly on the subject. The Assembly refused to make the appropriation asked for, and then Belcher replied : "*unless you make such provision the matter must still remain undone.*" As Massachusetts was then in possession of a large part of the territory of New Hampshire, this threat of the Governor, to leave it still in his own Province of Massachusetts, coerced the New Hampshire Assembly, under protest, into making an appropriation of one half the estimated amount. In the course of this discussion the Governor had claimed the exclusive duty, as representative of the Crown, to make the surveys and mark the boundary. With the money thus appropriated by New Hampshire Belcher caused a survey to be made from the ocean to the point three miles north of Pawtucket Falls, since known as the Boundary Pine, by George Mitchell; and another from the Boundary Pine to the Hudson River, by Richard Hazzen. The instructions given to Mitchell are unknown; those given to Hazzen were to allow ten degrees for the variation of the compass, an allowance so largely in excess of truth that if Hazzen had kept up to it it would at the Connecticut River have amounted to about three miles.

Massachusetts was both astounded and enraged by this decision of the King in Council, by which thirty or more townships and parts of townships which had been settled by her were assigned to New Hampshire and a line farther south than New Hampshire had proposed was declared to be the line. It is, however, incredible that any court, following any enlightened system of jurisprudence, could have done less for New Hampshire than was done by this decree. The settlers that Massachusetts had thus planted upon New Hampshire soil were of course her partisans, and efforts

fomented by Massachusetts agents were at once at work to secure the return of this territory to Massachusetts; and the efforts of New Hampshire to hold what she had thus acquired gave her sufficient occupation without allowing her to attend to the petty changes that were going along the line itself, in moving the monuments farther north, until in a few years the exact position of the line was in as much dispute as though it had never been run at all. The French and Indian war, which soon followed, gave both Provinces more important matters to attend to; and this was followed by the struggles which led to the national independence, including the war of the revolution, which left New Hampshire too exhausted to take up a struggle with her powerful neighbor.

Early in the present century the uncertainty of the line, and the obvious wrong done to New Hampshire in the running the Hazzen line, began to attract attention, and in 1825 commissioners were appointed by the two States to ascertain and establish the line. These commissioners, being unable to find any record of the work of either Mitchell or Hazzen, agreed to make an attempt to pick up the Mitchell line by such traditions and monuments as might be found upon the ground. For this purpose the surveyors on both sides run random lines, from which they computed the line they were seeking. When this had been accomplished the New Hampshire commissioners, who from the beginning had probably no hope that any just conclusion could thus be attained, proposed that a survey should be made of the Merrimack River, and from that the line of the decree of 1740 should be again run. But the Massachusetts commissioners refused, upon the ground of want of authority. It is difficult to see how such a claim could be made with a sober face, upon reading the resolve under which they acted, but this refusal put an end to all further joint action, and each

board made a report to the Legislature of their respective States, and the attempt to establish the line failed.

In 1827, the Massachusetts Legislature directed the appointment of a commissioner to mark the angles on the plan returned by her commissioners, with stone monuments. This line had never been run upon the ground, and the commissioner found the literal performance of his task impossible, but set them perhaps as near to the positions on the map as could be expected.

Thus the line remained, New Hampshire protesting against the injustice done her, with more or less of dispute as to the line, until in 1883 Massachusetts proposed to New Hampshire to appoint commissioners "*to reset and replace, when it is necessary, the monuments established as indicating the boundary line between*" the States. New Hampshire, deeming the effect of this to be to assent to the wrong which had been done her, refused to appoint such a commissioner. In 1885 Massachusetts made a new proposition by a joint resolution approved June 19, 1885, asking the appointment of commissioners, "*for the purpose of ascertaining and establishing the true jurisdictional boundary line between the two States,*" and to remove, as we supposed, any doubt as to her desire or intention, Massachusetts further resolved, "*That all previous legislation inconsistent herewith be and hereby is repealed.*" To these resolves, so eminently fair and just in their terms, New Hampshire assented at once in identical terms.

The commissioners met at Boston and communicated their respective powers, and at once commenced the discussion of the questions referred to us, which leading to a divergence of views, several adjournments were had, during which statements were made on each side of the claims on either side respectively. While no agreement was attained, it was proposed and assented to that surveys of the eastern part of the line, as suggested by either side, should be made, that the subject matter might be cor-

rectly understood; and an agreement in writing was made, a copy of which is hereto appended.

Under this agreement, Nelson Spofford, of Haverhill, was appointed as surveyor on the part of Massachusetts; and Prof. E. T. Quimby, of Hanover, was appointed as surveyor on the part of New Hampshire. The surveyors have by several verbal agreements modified, in some particulars, the agreement above referred to, and these modifications, although not formally agreed to by the commissioners, have been permitted by them to be acted upon.

Under these agreements Mr. Spofford has run a transit line from the Boundary Pine east, which will be completed this season. Prof. Quimby has made a trigonometrical survey of the territory. A survey of the river from Pawtucket Falls to Newburyport has also been made, from whence to the sea the charts of the United States Coast Survey will be used, and during the coming winter it is expected the completed maps will be made.

Prof. Quimby has also prepared maps of the line for this report. Map No. 1 shows the line from the Boundary Pine to the ocean, the trigonometry, with the positions of the existing monuments, from his own surveys; the river, from the stadia surveys above referred to; the topography, from existing state maps of New Hampshire and Massachusetts. This map shows accurately the course of the Merrimack River from Pawtucket Falls to the ocean, and the relation thereto of the existing monuments, and the line claimed by Massachusetts, at least so far as having set the monuments would indicate. It also shows two different theories as to what is intended by "*a similar curve line pursuing the course of the Merrimack River.*" The New Hampshire commissioners claim that such a line is one every part of which is three miles due north of the corresponding part of the river, and is represented by an unbroken line. It seems probable that Mitchell's

instructions from Belcher contemplated a line, at all points three miles from the river, at right angles to its course at each point, and is represented by a dotted line.

Map No. 2 shows the line from the Boundary Pine west. With the exception of a few points at its eastern end this is taken from the state maps, and while it cannot be relied upon as wholly accurate, it may serve to show the wrong done New Hampshire by the erroneous course directed by Belcher in Hazzen's survey. It shows the line run by Hazzen, as near as the same has been preserved, and also the parallel of latitude of the Boundary Pine projected to the Connecticut River.

In the prosecution of these surveys we have been greatly aided by the hearty coöperation of the United States Coast Survey, by the furnishing of instruments and camp equipage, with the necessary record books, and much valuable information. For these we have agreed that the original records of the survey shall be furnished to the Coast Survey. We have also agreed with Massachusetts that copies of all field notes and records of either survey shall be furnished to each State, and for that purpose two copies are being made of Prof. Quimby's records, one for Massachusetts and one for New Hampshire. As already stated, the originals go to the Coast Survey. The thanks of the State and of the commissioners are due to the superintendent and officers of the Coast Survey, for their uniform courtesy and aid, without which our task would have been much more difficult.

Prof. Quimby is now engaged in fixing accurately the latitude of the supposed point where the Hazzen line crosses the Connecticut River. With this, it is now supposed, the field work of the present surveys will cease. There will still remain the computation of this season's work, some verifications of that of last season, the making of the map and the comparison with that of Massa-

chusetts, after which the commissioners will endeavor by their negotiations to secure the recognition by Massachusetts of our just claims.

Appended will be found the report of Prof. Quimby as surveyor on the part of New Hampshire.

APPENDIX.

WHEREAS, in the business of ascertaining and establishing the true jurisdictional boundary line between the States of Massachusetts and New Hampshire, differences of belief are found to exist as to where said line is and should be,

It is agreed, pending the negotiations, and without prejudice to the views or claims of either party, on any part of the line, and for information only, that the following surveys shall be made and map drawn :

I. An accurate map of the Merrimack River, from the ocean to a point above Pawtucket Falls, to be compiled from accurate and reliable surveys (where they can be found, to the satisfaction of the several boards of commissioners), and where no such surveys can be found, thus satisfactory, an accurate survey of the river shall be made. Such map shall show correctly both shores of the river. Upon said map shall also be drawn "a similar curve line pursuing the course of said river at three miles distance on the north side thereof."

II. An accurate survey and plan shall be made of the line or lines represented by monuments, and which is supposed to be based upon the survey of George Mitchell, in 1741, under the direction of Gov. Belcher, and which was in whole or in part intended to be delineated upon the map returned by the Massachusetts commissioners in 1825, and upon which Massachusetts directed stone monuments to be placed in 1827. Such plan shall be upon the same scale as the map of Merrimack River above pro-

vided for, and shall be protracted upon the same sheet, so as to accurately represent the relation of all the lines and monuments to the said river and to each other. Said map shall show all monuments of whatever description, purporting to represent the state line, or to have been erected upon it, and no effort shall be omitted to ascertain whether such monuments correctly represent the line run by said Mitchell, and where and how it differs from that line, and where and how they differ or agree with the line represented on the map returned by said commissioners in 1825, and how far such monuments as were set in 1827 were set on either of said lines. Said map shall show all houses, roads, and natural monuments, including streams, within one thousand feet of said line on either side, correctly located with reference to said line and to each other. Said map shall show the intersection of all town lines with said river and with the other lines projected on said map.

III. It is further agreed that all records here or in England which bear upon this question shall be copied for the use of the commissioners, and all evidence attainable shall be procured, and for that purpose the joint board shall hold public hearings at convenient points on or near said line, and invite information from any parties who may have it in their possession.

IV. Reports of the progress of the surveys and map above referred to shall from time to time be made to the commissioners from the two States.

V. For the prosecution of the above work the commissioners from each State will appoint a surveyor and assistant surveyor and the necessary assistants, who will proceed together and act in concert so far as they can agree, each keeping their own field notes and records of the survey, and each protracting their work separately until the survey shall be completed, when they will unite in the preparation of the map herein provided for.

VI. It is expressly understood and agreed that the surveys, map, and inquiries herein provided for are for information only; that no permanent monuments shall now be placed, and that nothing done under this agreement shall be to the prejudice of either party or any part of the line.

VII. After the completion of the surveys and map herein provided for, the commissioners will determine in what way they shall further proceed to carry out the purposes of their appointment.

HENRY CARTER,
GEORGE W. CATE,
NELSON SPOFFORD,
Commissioners for Massachusetts.

JOHN J. BELL,
NATHANIEL W. CLARK,
CHARLES H. ROBERTS,
Commissioners for New Hampshire.

DECEMBER 19, 1885.

*To the Hon. John J. Bell, Chairman of the New Hampshire
Boundary Line Commission:*

SIR,—In compliance with your instructions of February, 1886, I met Mr. Nelson Spofford, of Haverhill, Mass., the surveyor on the part of Massachusetts, at the Eagle Hotel in Concord, and consulted with him in reference to the surveys contemplated in the agreement made by the Joint Boundary Line Commission, a copy of which you had furnished me. As a result of this conference I assumed on the part of New Hampshire the necessary triangulation to locate the existing monuments purporting to mark what is known as the "Mitchell Line," while Mr. Spofford undertook the work of running the same

line upon the ground and connecting prominent objects within one thousand feet of said line as per your aforesaid agreement; and also the necessary river surveys.

In pursuance of this arrangement I communicated with the Coast and Geodetic Survey office at Washington, and obtained the privilege of using in this survey the instruments and camp equipage already in my possession. That office has also furnished the record books and stationery necessary for the boundary line survey, and in return will receive the field notes of the latter. Our acknowledgments are due to the officers of the United States Coast and Geodetic Survey for their courtesy, which has greatly facilitated our work.

On April 20, 1886, I took the field with one assistant and commenced a reconnoissance, beginning at Salisbury Beach, for the purpose of selecting suitable stations and erecting signals. This reconnoissance we were able so far to complete from Salisbury to Lowell that on the 10th of May our camp was pitched on Reservoir Hill in Lowell. The party then consisted of three young men of the senior class in the Chandler Scientific Department, Dartmouth College, and a cook, and was constituted as follows: C. H. Carpenter, Andover, Mass., recorder; J. B. Rogers, Byfield, Mass., assistant; H. E. Gage, Boxford, Mass., assistant; Richard Cossingham, cook. The party remained the same till September 1, when the students were obliged to return to their college work, and I employed George W. Fernald, of Farmington, as recorder, and Frank J. Davis, of the second class C. S. D., and John P. Titcomb, of West Newbury, Mass., as assistants for the remainder of the season. I wish here to express my entire satisfaction with the ability, energy, and faithfulness with which each of my assistants performed the work assigned him.

Our plan contemplated the location by triangulation of points near the line as marked by monuments, and the

connection of these points to the line by Mr. Spofford as he passed along in the prosecution of his work. This plan was acted upon through May and June, but early in July, at an interview with Mr. Spofford, he informed me that he found it impracticable to connect to the line the outlying triangulation points on account of the obstructions by forests and otherwise. It was therefore determined to erect signals at the monuments, of sufficient height to be seen above the forests, and thus to connect them to the triangulation. For this purpose it was necessary to re-occupy the stations already visited, together with such other minor stations as might be necessary to complete the triangulation scheme. It was agreed between myself and Mr. Spofford, with your approval, that I should furnish a suitable horse and wagon for the transportation of these signals, with one man for driver and to assist in erecting the signals; and that Mr. Spofford should furnish the signals and such other men as should be needed in their erection. This arrangement was carried out until late in September, when Mr. Spofford was obliged to leave the field, and the whole expense of handling the signals fell on my party. The signals used were devised by Mr. Spofford himself and had the advantage of being portable, while they could be run up by ropes and pulleys to the height of seventy-five to one hundred feet. They required, however, almost constant attention to keep them in a vertical position, and for that reason would be of no value where great accuracy is desired. For the purposes of this survey they would perhaps give sufficient accuracy, if the geographical position of the monuments, with a probable error of four to six feet, is satisfactory. The difference between these and our ordinary signals in stability is seen in the fact that, with these tall signals, positions, as determined by different triangles, rarely check to less than two or three feet, while with the stable signals the discrepancies as rarely exceed six inches.

The distance from our station on Brandy Brow to the corner monument on that hill was carefully measured with the steel tape, and the same distance (about two hundred feet) calculated, varied less than two inches. This and other like checks on points of Borden's Massachusetts survey (1830) are sufficient to assure a good degree of accuracy in the work, though the lack of time prevented the taking of the usual number of observations on each signal. This failure to connect the triangulation to the line, by the Massachusetts party, prolonged our work several weeks, but gave us in the end a better result, as it made the triangulation complete in itself and wholly independent of the work done by Mr. Spofford's party, thus enabling the work of the two parties to be compared as two independent surveys, and to check each other.

The field work of the triangulation was closed October 25, at Newbury Old Town. The field notes fill nineteen volumes of the usual Coast and Geodetic Survey record books, and contain observations from forty-one stations, upon about one thousand different objects, and the whole number of observations is nearly ten thousand.

October 26, according to your instructions received that day at Newburyport, I proceeded to Lowell for the purpose of surveying the river from that point to Lawrence. In this survey Mr. George W. Wood and others of the Massachusetts party were employed, and the work was finished about the middle of November. By the courtesy of A. W. Hunking, C. E., we were able to obtain a recent and accurate survey of the river within the limits of the city of Lowell. Mr. Wood had previously surveyed the river from Lawrence to Groveland Bridge, and since that time has carried the same work from Groveland Bridge to Deer Island. This gives us a complete survey of the river from Pawtucket Falls to Deer Island, and below that point to the ocean we have the work of the Coast Survey.

As the result of the season's work (1886) I am able to

furnish the chart of the eastern section of the New Hampshire southern boundary, which accompanies this report. The western section is enlarged from our most recent maps, and for its accuracy I cannot vouch, except so far as relates to the "True Line," which is drawn as a parallel of latitude from the Pine Tree monument westward, according to the decree of George II. in 1740. As measured on the map this shows a distance of about two miles between the "Hazzen line" and the true line. The royal decree says that this shall be a "*straight line*," "due west." As this is impossible I have made it follow the parallel of the Pine Tree monument, which I judge to be the intention of the decree. A straight line starting from this monument due west would strike the Connecticut River nearly half a mile farther south.

The chart of the eastern section, so far as roads and town lines are concerned, is taken from existing maps. How correct these may be where they intersect the Mitchell line will be determined by Mr. Spofford's survey. The triangulation points, the river and the state lines, are from the present boundary line survey. By your direction I have represented on this chart three lines, as follows :

I. The line decreed by George II. in 1740, which was to be "A similar curve line pursuing the course of the Merrimack River at three miles' distance on the north side thereof, beginning at the Atlantic Ocean and ending at a point due north of Pawtucket Falls."

II. A line everywhere three miles distant from the Merrimack River.

III. The line marked by existing monuments.

The last of these is represented by the series of straight lines with small circles at the angles indicating the position of the monuments. This line was determined, as I have already said, by our survey of 1886.

The second is a series of curves represented by a dotted

line. The essential feature of this line is that from no point of it can a straight line be drawn to the river in a less distance than three miles, and from every point of it one line, at least, can be drawn to the river which shall not be more than three miles long. By "*the river*" in all these discussions is meant the "*center line*" of the river.

The first of these lines furnishes an opportunity for a difference of interpretation, though on further examination we shall see that we can fairly give but one interpretation to the words in which it is defined. It is decreed to be "a similar curve line pursuing the course of the Merrimack River." This can mean nothing except that its curvature and that of the river are alike. It has been argued by some that because the word "*similar*" is used it can only mean "*somewhat alike*" and not exactly alike or identical. This argument proves nothing but the ignorance of the person using it. When used of geometrical quantities "*similar*" has but one meaning, and that is, "*alike in shape.*" This is the only likeness required and this is *required*. Bodies may be unlike in volume, and figures may be unlike in area, but if similar they are exactly alike in shape. The same is true of curves: they may be unlike in length, but to be similar must be *precisely* alike in shape. This "similar curve line pursuing the course of the Merrimack River" is also to be "at three miles' distance on the north side" of the river. Here may arise a question, whether this means at three miles' distance, measured always due north, or in any direction to the nearest point of the river. But of these two possible interpretations the one must be chosen which is consistent with the rest of the decree. It is a good principle of interpretation that when one sentence of a document is capable of two or more meanings it must be given the one (if such there be) that is consistent with the rest of the document. In this case measuring the three miles always due north, it is perfectly consistent

with the rest of the decree, but in any other way it makes the fulfillment of the decree utterly impossible. This line I have represented on the chart by a full line. It will be asked how a line three miles north of the river can cross the river. Any one troubled by this question has only to observe that it is only required that each point of the line be three miles *due north* of the corresponding point of the river. I desire not to be understood as recommending this line as a state boundary. That question, belonging wholly to the commissioners, I do not enter upon. I speak only as a surveyor called upon to map a line as described.

The courses and distances of the line surveyed, together with the geographical positions of the triangulation points, I have thought best not to embody in this report. They will be carefully examined and arranged for a subsequent report.

Respectfully submitted.

E. T. QUIMBY,
Surveyor for New Hampshire.

HANOVER, July, 1887.

